

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: P242759

Luminaire Tested: **S124RDR-S1020D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242759  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-31)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124RDR-S1020D935-X4F0-XX-UDD-A-W  
Description: DEFINE 4 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3444.5 lumens  
Efficiency: N/A  
Efficacy: 99.0 lumens/watt  
Spacing Criteria (0/90/45): 1.27 / 1.22 / 1.39  
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')  
CIE Type: Direct

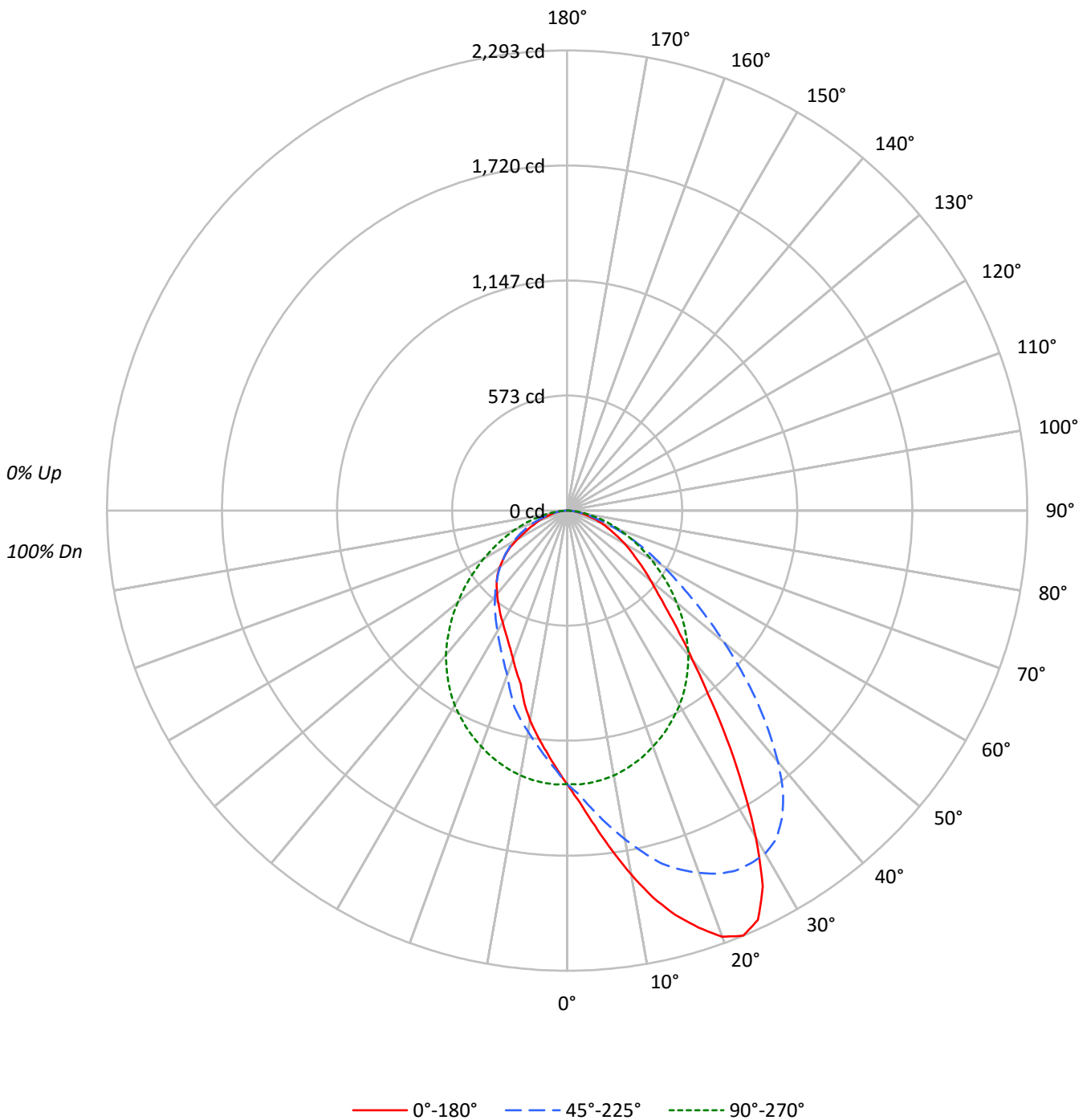
Input Watts (W): 34.8  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86
2	101	93	87	82	98	92	86	81	88	83	79	85	81	77	82	79	76	74
3	93	83	76	70	90	81	75	69	79	73	68	76	71	67	73	69	65	63
4	85	74	66	60	83	73	65	59	71	64	59	68	63	58	66	61	57	55
5	79	67	58	52	77	66	58	52	64	57	51	62	56	51	60	55	50	48
6	73	61	52	46	71	60	52	46	58	51	46	56	50	45	55	49	45	43
7	68	55	47	41	66	54	47	41	53	46	41	52	45	40	50	44	40	38
8	64	51	42	37	62	50	42	37	49	42	37	47	41	36	46	40	36	34
9	59	47	39	33	58	46	38	33	45	38	33	44	38	33	43	37	33	31
10	56	43	35	30	55	43	35	30	42	35	30	41	34	30	40	34	30	28

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

	0°	90°	180°
0°	12112	12112	12112
5°	14049	12148	10738
10°	16620	12096	9584
15°	19198	11983	8235
20°	21375	11830	7447
25°	22066	11679	6914
30°	19317	11496	6593
35°	15037	11224	6398
40°	11275	10912	6294
45°	8903	10414	6239
50°	7516	9839	6058
55°	6551	9205	5734
60°	5895	8549	5076
65°	5195	7841	4364
70°	4681	7106	3937
75°	3922	6299	3355
80°	3317	5370	3148
85°	2794	4202	2794



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	131.9	3.8
10°-20°	398.4	11.6
20°-30°	624.1	18.1
30°-40°	693.1	20.1
40°-50°	614.2	17.8
50°-60°	478.6	13.9
60°-70°	313.1	9.1
70°-80°	153.6	4.5
80°-90°	37.4	1.1
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	1154.5	33.5
0°-40°	1847.6	53.6
0°-60°	2940.4	85.4
0°-90°	3444.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3444.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1363	1363	1363	1363	1363	
5°	1574	1499	1362	1232	1203	159
15°	2086	1822	1302	1014	895	593
25°	2250	1981	1191	776	705	1005
35°	1386	1868	1034	624	590	867
45°	708	1331	828	496	496	558
55°	423	753	594	374	370	384
65°	247	387	373	242	208	248
75°	114	147	183	118	98	125
85°	27	30	41	29	27	32
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6
2.5°	1455.9	1460.9	1455.9	1455.4	1449.9	1448.2	1446.1	1438.9	1425.7	1418.1	1419.7
5°	1574.5	1588.2	1580.6	1579.5	1567.4	1555.3	1547.6	1530.1	1511.4	1498.8	1488.3
7.5°	1706.3	1714.5	1709.0	1703.0	1682.1	1675.5	1657.4	1636.6	1605.3	1581.7	1560.2
10°	1841.3	1847.9	1845.7	1831.4	1817.2	1788.1	1771.6	1739.2	1696.9	1663.5	1632.2
12.5°	1974.2	1981.3	1957.7	1962.1	1931.9	1910.5	1882.0	1839.1	1788.6	1743.1	1701.9
15°	2086.2	2077.4	2077.4	2066.4	2036.2	2004.4	1977.5	1934.7	1873.2	1821.6	1767.2
17.5°	2178.4	2182.3	2177.9	2149.9	2127.9	2095.5	2047.2	1998.3	1945.1	1875.9	1822.1
20°	2259.7	2259.7	2254.7	2237.2	2206.4	2171.3	2118.0	2063.7	1991.2	1921.5	1858.9
22.5°	2292.6	2294.8	2288.8	2275.0	2248.1	2214.1	2170.7	2115.3	2040.1	1959.4	1878.1
25°	2249.8	2260.2	2261.3	2257.5	2249.2	2228.4	2189.4	2132.8	2065.9	1980.8	1897.3
27.5°	2111.4	2125.2	2130.7	2142.7	2165.2	2173.5	2168.5	2130.7	2065.9	1981.9	1899.0
30°	1882.0	1892.9	1928.6	1975.3	2011.5	2044.5	2073.0	2080.7	2047.8	1974.2	1885.8
32.5°	1627.2	1643.1	1678.8	1729.9	1796.3	1857.8	1930.8	1969.8	1976.9	1940.1	1860.0
35°	1385.7	1396.6	1429.6	1482.3	1554.8	1637.7	1739.2	1818.3	1872.1	1868.2	1818.3
37.5°	1154.0	1169.4	1202.8	1246.2	1317.6	1423.5	1519.6	1625.6	1722.2	1769.4	1744.2
40°	971.7	972.3	1004.7	1049.7	1115.6	1205.0	1312.1	1432.9	1543.8	1634.4	1651.9
42.5°	827.9	827.9	846.6	896.0	938.8	1021.7	1122.7	1242.4	1376.9	1485.0	1538.8
45°	708.2	713.1	730.7	759.8	797.1	868.5	950.3	1061.8	1207.2	1331.3	1408.7
47.5°	613.8	622.6	633.0	659.3	690.1	740.0	809.8	914.1	1034.9	1172.7	1279.7
50°	543.5	544.6	558.9	572.1	597.9	635.7	695.0	778.5	887.2	1018.4	1140.8
52.5°	483.1	482.6	489.7	507.3	527.0	554.5	599.5	673.6	766.9	881.1	1008.5
55°	422.7	425.5	432.1	445.2	461.2	482.0	519.9	577.0	652.8	753.2	868.0
57.5°	376.6	378.3	384.3	389.2	404.6	420.0	450.7	491.9	558.3	642.3	754.9
60°	331.6	332.1	333.8	342.0	353.6	367.8	387.0	420.5	474.3	549.5	634.1
62.5°	287.7	288.8	291.5	297.0	305.2	314.0	334.3	359.6	401.9	463.4	537.5
65°	247.0	247.6	251.4	253.6	260.8	269.6	284.4	302.5	333.2	387.0	444.7
67.5°	213.0	213.0	213.0	216.3	221.8	227.8	237.7	253.1	277.8	312.4	366.2
70°	180.1	180.1	181.2	182.8	185.6	190.5	195.4	206.4	223.4	250.3	289.3
72.5°	149.3	149.9	151.0	151.0	152.1	155.9	159.2	165.2	176.8	195.4	225.1
75°	114.2	115.8	118.6	120.8	123.5	123.0	126.8	131.2	135.1	147.1	165.2
77.5°	90.0	88.9	88.9	91.1	91.7	92.2	95.0	98.8	102.1	108.7	115.3
80°	64.8	64.8	66.4	67.0	66.4	67.0	69.7	71.4	72.5	74.7	80.7
82.5°	45.0	46.1	45.0	45.6	46.1	46.7	48.9	48.9	50.0	50.5	52.2
85°	27.4	28.0	28.5	27.4	27.4	27.4	28.5	29.1	30.2	29.6	30.7
87.5°	12.1	11.5	12.1	12.1	12.6	12.1	12.6	13.7	12.6	13.2	13.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6
2.5°	1414.2	1406.5	1402.7	1393.9	1383.5	1378.0	1373.0	1365.9	1356.6	1346.7	1339.5
5°	1475.2	1462.0	1445.5	1425.7	1408.2	1391.2	1376.3	1361.5	1344.5	1326.9	1309.4
7.5°	1535.5	1511.9	1486.7	1456.5	1427.4	1400.5	1376.3	1352.7	1325.8	1301.7	1279.2
10°	1599.2	1564.1	1525.1	1483.9	1442.8	1407.1	1371.9	1340.1	1305.0	1273.7	1247.3
12.5°	1650.8	1608.0	1559.1	1505.3	1453.7	1408.7	1367.0	1323.1	1281.9	1247.3	1210.0
15°	1709.0	1652.5	1589.3	1527.9	1463.6	1404.9	1350.5	1302.2	1256.7	1208.9	1175.4
17.5°	1749.1	1683.8	1609.1	1537.7	1464.2	1396.1	1334.6	1278.6	1226.5	1178.7	1139.2
20°	1784.2	1710.1	1625.0	1541.0	1455.9	1381.8	1314.3	1250.6	1196.3	1143.6	1102.4
22.5°	1804.0	1720.0	1625.0	1536.1	1447.2	1365.4	1289.6	1222.6	1162.2	1109.5	1062.9
25°	1805.1	1717.3	1622.3	1521.3	1424.6	1339.5	1262.7	1190.8	1124.9	1072.2	1023.9
27.5°	1800.7	1699.1	1603.6	1501.0	1401.6	1311.0	1231.4	1155.1	1089.8	1033.8	984.3
30°	1787.5	1676.6	1572.3	1464.7	1363.7	1277.5	1192.4	1120.0	1051.3	992.6	942.6
32.5°	1759.0	1649.2	1535.0	1424.1	1321.4	1231.9	1152.3	1079.3	1012.3	952.0	898.2
35°	1719.5	1608.0	1486.1	1373.0	1272.6	1180.3	1104.6	1034.3	970.1	905.8	849.8
37.5°	1673.9	1557.5	1437.3	1313.2	1213.3	1125.4	1054.6	987.1	924.5	865.8	803.7
40°	1603.6	1499.9	1374.7	1251.7	1148.5	1064.5	1000.3	940.4	877.3	819.1	757.1
42.5°	1518.5	1434.0	1307.2	1183.6	1082.1	1001.9	943.2	885.0	829.0	773.0	707.7
45°	1421.9	1354.9	1236.3	1117.8	1015.1	934.9	880.0	828.4	777.9	724.1	663.2
47.5°	1314.3	1264.9	1161.7	1037.6	941.5	868.0	815.3	772.4	728.0	673.6	618.7
50°	1201.2	1172.1	1073.3	962.4	871.8	805.4	751.0	711.5	675.8	624.2	576.4
52.5°	1080.4	1068.3	988.7	883.9	797.1	732.4	687.9	653.3	617.1	576.4	532.5
55°	957.4	965.7	894.9	803.2	720.8	665.9	623.7	594.0	563.3	527.0	492.4
57.5°	829.5	860.8	808.1	725.2	645.6	594.0	561.6	535.3	509.5	478.7	447.4
60°	717.0	742.2	715.3	644.5	577.0	529.8	500.1	480.9	455.1	427.7	405.2
62.5°	607.2	634.6	621.5	567.7	506.2	467.2	441.9	424.4	406.8	383.7	360.1
65°	518.8	536.4	528.7	489.2	444.7	410.1	385.9	372.8	355.2	337.6	316.8
67.5°	415.0	449.6	444.1	422.2	379.4	351.9	334.9	322.8	306.3	293.2	278.3
70°	326.7	357.9	357.4	340.4	319.5	294.3	283.3	273.4	259.1	246.5	235.0
72.5°	252.5	280.5	286.0	273.9	261.3	243.8	233.3	227.3	213.6	205.9	197.1
75°	187.2	208.1	213.6	213.6	207.0	197.1	187.8	183.4	173.5	165.8	160.3
77.5°	131.8	146.0	154.3	155.9	156.5	152.6	143.8	140.5	132.9	130.1	124.1
80°	86.7	95.5	105.4	108.7	111.4	110.3	107.1	104.9	97.7	95.0	92.8
82.5°	53.3	57.1	64.8	73.0	71.4	75.2	72.5	70.8	65.9	65.3	63.1
85°	31.3	31.8	32.9	37.9	40.6	41.7	42.3	41.2	39.5	39.5	35.7
87.5°	13.2	12.6	13.7	13.7	14.3	16.5	18.1	18.7	17.0	15.4	13.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6	1362.6
2.5°	1331.9	1326.4	1319.2	1311.0	1301.1	1292.3	1288.5	1291.8	1293.4	1289.0	1288.5
5°	1297.3	1283.6	1272.6	1256.1	1242.9	1231.9	1224.3	1221.0	1222.1	1213.3	1211.1
7.5°	1258.8	1244.0	1225.9	1207.2	1189.7	1174.3	1166.1	1162.2	1152.9	1149.0	1143.0
10°	1222.1	1200.1	1182.5	1159.5	1138.6	1119.4	1110.1	1102.4	1093.0	1088.7	1079.3
12.5°	1184.2	1157.8	1138.1	1113.9	1092.5	1068.3	1059.6	1043.6	1027.7	1017.3	1004.7
15°	1149.0	1118.3	1094.7	1066.1	1040.9	1014.5	990.9	964.6	954.7	933.8	921.8
17.5°	1107.3	1075.5	1049.1	1012.3	974.5	942.6	916.3	888.8	874.0	859.7	853.7
20°	1066.1	1037.6	997.0	952.5	909.1	872.9	852.6	836.1	819.7	810.3	803.7
22.5°	1027.2	988.7	939.9	891.0	847.6	821.3	804.8	787.8	775.2	766.4	757.1
25°	982.7	934.9	885.0	830.1	800.4	775.7	757.1	743.3	735.1	723.6	719.2
27.5°	939.3	881.7	825.1	787.8	757.1	733.5	716.4	706.6	695.6	687.9	681.9
30°	887.7	829.0	779.6	744.4	713.1	694.5	681.3	669.2	661.0	655.0	650.6
32.5°	836.7	777.9	738.4	700.0	676.9	658.8	644.5	636.3	630.2	622.0	619.8
35°	787.8	735.7	699.4	665.4	640.1	623.7	612.7	603.3	597.9	595.7	594.0
37.5°	740.0	696.7	656.6	629.1	605.5	592.9	578.6	574.2	570.4	565.5	567.7
40°	695.0	655.0	620.4	590.7	572.6	558.3	550.6	545.2	541.9	541.9	541.9
42.5°	656.0	617.1	583.6	557.8	539.7	528.1	519.3	515.0	514.4	513.9	517.2
45°	615.4	579.2	545.2	523.2	507.8	495.7	490.8	487.0	487.0	489.2	489.7
47.5°	574.8	540.8	513.3	488.1	473.8	466.1	461.7	459.5	459.5	462.3	464.5
50°	538.0	504.5	477.6	455.7	442.5	435.4	431.5	430.4	431.5	431.5	435.4
52.5°	497.9	468.8	442.5	424.9	409.6	403.0	401.3	399.7	400.2	402.4	403.5
55°	459.0	432.1	406.8	389.2	378.3	373.9	368.9	369.5	368.4	369.5	369.5
57.5°	419.4	395.8	371.1	356.8	347.5	340.9	335.4	337.1	335.4	335.4	334.9
60°	381.6	355.2	336.5	323.9	312.9	307.4	302.5	303.6	301.9	300.8	298.7
62.5°	340.4	319.5	301.9	289.9	281.6	275.0	270.1	268.5	264.1	259.7	254.2
65°	300.8	282.7	266.8	255.3	247.0	242.1	238.3	235.0	226.7	218.0	213.6
67.5°	261.9	248.7	233.3	223.4	216.9	210.3	203.1	197.1	188.9	183.4	180.6
70°	224.5	211.9	199.3	190.0	182.8	176.8	168.5	164.7	159.2	157.0	154.3
72.5°	188.9	177.3	165.8	157.6	149.9	145.5	139.4	135.6	134.0	133.4	130.7
75°	152.6	143.3	134.5	126.8	120.8	117.5	114.7	112.0	110.9	106.0	103.2
77.5°	117.5	110.9	105.4	99.4	95.5	93.3	87.3	83.4	81.3	78.5	78.0
80°	86.7	82.3	76.9	73.6	67.5	65.3	63.1	62.6	62.0	61.5	60.9
82.5°	59.8	55.4	50.0	48.3	47.8	46.7	45.6	45.0	44.5	45.0	45.0
85°	32.9	30.7	30.7	30.2	29.6	29.1	28.5	28.5	28.0	28.5	28.0
87.5°	13.7	13.2	13.2	12.1	12.6	12.6	12.1	12.1	12.6	11.5	11.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0





TEST NUMBER: P242759

CATALOG NUMBER: S124RDR-S1020D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1362.6	1362.6	1362.6	1362.6
2.5°	1285.2	1286.3	1282.5	1281.4
5°	1206.7	1205.6	1202.8	1203.4
7.5°	1138.6	1134.8	1137.5	1133.1
10°	1077.1	1071.1	1066.1	1061.8
12.5°	993.1	988.2	981.1	983.8
15°	914.6	906.4	893.2	894.9
17.5°	844.4	845.5	837.8	840.0
20°	792.2	788.4	788.9	787.3
22.5°	756.0	751.0	746.1	742.2
25°	714.2	710.9	706.0	704.9
27.5°	677.5	676.9	674.7	672.0
30°	646.2	645.1	644.0	642.3
32.5°	618.2	617.6	616.5	617.1
35°	591.8	591.3	590.2	589.6
37.5°	567.1	568.8	567.7	567.7
40°	541.3	541.9	543.0	542.4
42.5°	519.9	519.9	521.5	519.3
45°	493.5	496.8	496.3	496.3
47.5°	465.5	469.4	469.9	469.9
50°	438.1	437.0	438.6	438.1
52.5°	404.6	405.2	404.6	404.1
55°	370.0	370.6	369.5	370.0
57.5°	333.2	331.0	332.7	331.6
60°	293.2	288.8	287.7	285.5
62.5°	248.1	245.4	241.0	243.8
65°	209.2	207.0	205.3	207.5
67.5°	177.9	176.8	176.8	175.7
70°	154.3	152.6	152.6	151.5
72.5°	130.1	128.5	129.0	128.5
75°	99.9	97.2	97.2	97.7
77.5°	78.0	77.4	78.5	76.9
80°	60.9	60.4	59.8	61.5
82.5°	43.9	43.9	43.9	46.1
85°	28.5	27.4	28.5	27.4
87.5°	12.6	12.1	11.5	12.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)