

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: P243104

Luminaire Tested: **S121RDR-H1025D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243104
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-67)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121RDR-H1025D935-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2831.3 lumens
Efficiency: N/A
Efficacy: 75.1 lumens/watt
Spacing Criteria (0/90/45): 0.89 / 1.21 / 1.07
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

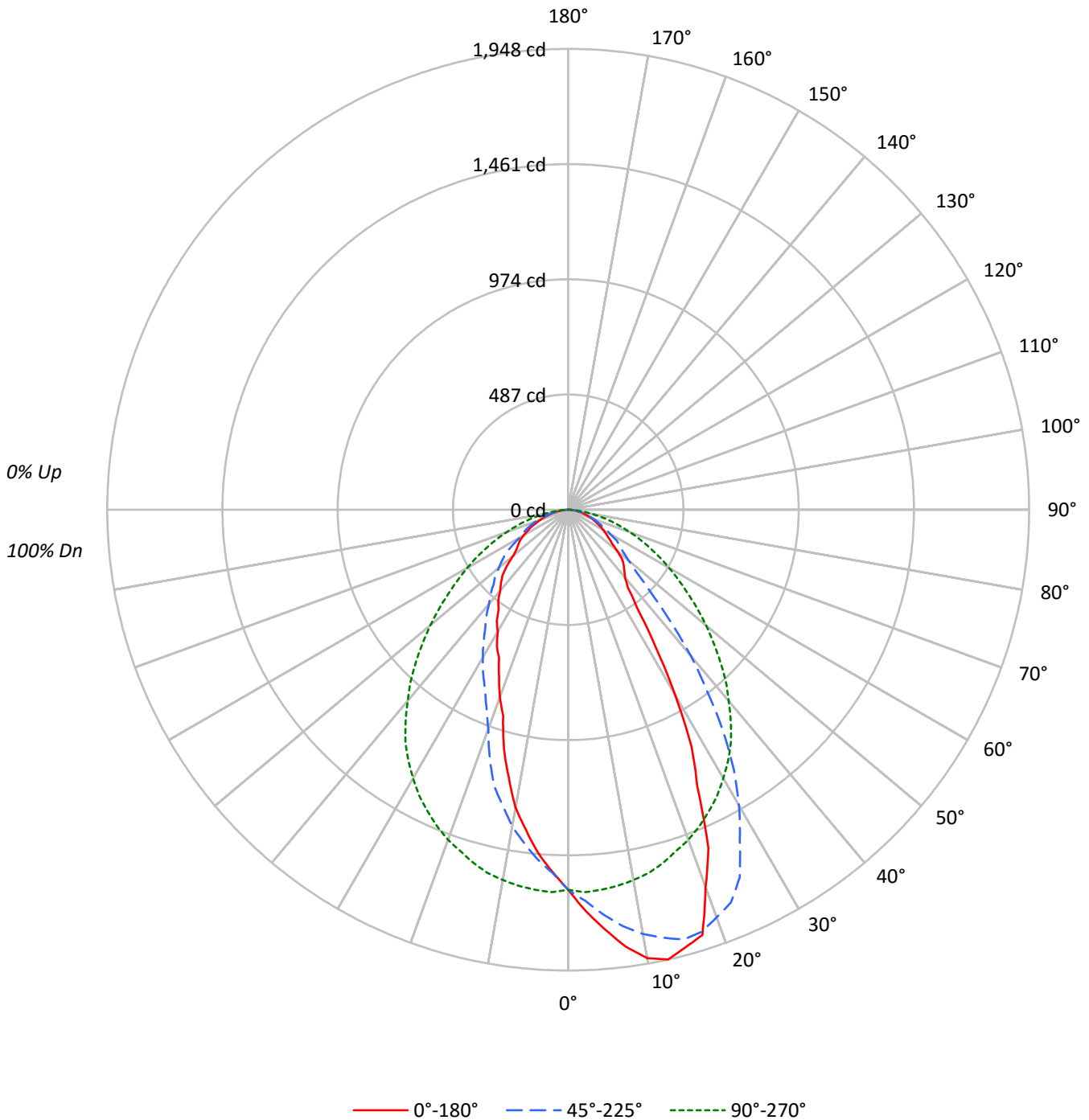
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100	100	100	100	100	100	100		
1	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89	87	87	87	87	87	87	87		
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76	76	76	76	76	76	76		
3	94	85	78	73	92	84	77	72	81	75	71	78	73	70	76	72	68	66	66	66	66	66	66	66		
4	87	77	69	63	85	76	69	63	73	67	62	71	66	61	69	64	61	59	59	59	59	59	59	59		
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52	52	52	52	52	52	52		
6	76	64	56	50	74	63	55	50	61	55	50	60	54	49	58	53	49	47	47	47	47	47	47	47		
7	71	59	51	45	69	58	50	45	56	50	45	55	49	44	54	48	44	42	42	42	42	42	42	42		
8	66	54	46	41	65	53	46	41	52	46	41	51	45	41	50	44	40	39	39	39	39	39	39	39		
9	62	50	43	38	61	50	42	38	49	42	37	48	42	37	47	41	37	35	35	35	35	35	35	35		
10	59	47	39	35	58	46	39	35	45	39	34	44	38	34	44	38	34	33	33	33	33	33	33	33		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	47585	47585	47585
5°	52954	47966	43335
10°	57902	47829	38481
15°	58739	47427	32138
20°	53543	46821	26581
25°	42170	45973	22610
30°	30830	44857	20388
35°	18400	43373	18530
40°	14427	40802	17286
45°	13908	38090	16443
50°	12395	35033	13958
55°	10822	31878	13328
60°	10122	29173	12919
65°	9423	26537	11975
70°	8914	23919	10916
75°	8185	21282	9708
80°	7439	17251	8480
85°	7003	13191	6187



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	153.3	5.4
10°-20°	427.7	15.1
20°-30°	568.7	20.1
30°-40°	542.5	19.2
40°-50°	450.2	15.9
50°-60°	334.8	11.8
60°-70°	216.8	7.7
70°-80°	110.3	3.9
80°-90°	27.0	1.0
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°	1149.7	40.6
0°-40°	1692.2	59.8
0°-60°	2477.2	87.5
0°-90°	2831.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2831.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1606	1606	1606	1606	1606	
5°	1780	1718	1613	1484	1457	174
15°	1915	1881	1546	1209	1048	533
25°	1290	1714	1406	832	692	599
35°	509	1139	1199	611	512	346
45°	332	491	909	446	392	253
55°	210	266	617	322	258	190
65°	134	153	378	194	171	134
75°	72	78	186	96	85	76
85°	21	20	39	21	18	22
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°	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0
2.5°	1698.1	1693.8	1698.7	1696.8	1689.0	1690.8	1681.1	1675.0	1660.5	1655.1	1655.1
5°	1780.4	1786.5	1782.8	1784.1	1776.2	1771.3	1761.0	1749.5	1731.4	1718.0	1713.2
7.5°	1862.8	1864.6	1866.4	1861.6	1852.5	1844.0	1829.5	1812.5	1792.5	1775.6	1762.3
10°	1924.5	1928.8	1926.4	1919.1	1912.4	1899.7	1884.0	1865.8	1844.0	1821.6	1805.2
12.5°	1947.6	1951.2	1956.6	1952.4	1951.8	1945.7	1930.0	1907.6	1880.9	1853.1	1834.3
15°	1914.9	1912.4	1927.0	1923.3	1922.1	1919.7	1923.9	1919.1	1905.2	1880.9	1857.9
17.5°	1884.6	1883.4	1897.9	1901.5	1896.1	1888.2	1883.4	1877.3	1870.7	1871.3	1868.2
20°	1698.1	1735.0	1742.3	1761.6	1802.8	1830.1	1857.3	1856.1	1836.7	1833.7	1832.5
22.5°	1547.9	1561.8	1555.1	1586.6	1609.0	1658.1	1705.9	1766.5	1807.1	1796.8	1790.1
25°	1289.9	1333.5	1353.5	1392.8	1449.8	1512.1	1539.4	1603.6	1666.0	1714.4	1751.4
27.5°	1130.0	1139.7	1152.4	1193.0	1214.2	1271.1	1372.9	1460.1	1518.2	1570.9	1668.4
30°	901.1	905.3	949.6	972.0	1034.3	1090.1	1178.5	1248.7	1365.6	1443.7	1518.8
32.5°	687.9	684.3	732.8	758.8	820.6	895.7	994.4	1059.8	1174.2	1302.0	1391.6
35°	508.7	508.1	534.1	552.3	620.1	677.6	803.0	888.4	1013.7	1139.1	1254.8
37.5°	414.2	413.6	419.1	434.8	463.3	528.1	588.6	715.2	837.5	961.1	1105.8
40°	373.0	376.1	377.3	384.5	394.2	413.6	450.6	539.0	658.9	806.0	951.4
42.5°	351.2	351.2	352.5	354.3	359.1	364.6	387.0	420.9	517.2	634.7	797.6
45°	331.9	332.5	333.7	334.9	333.7	336.7	347.0	360.9	398.5	491.1	648.6
47.5°	308.8	308.2	311.3	313.1	315.5	319.1	319.7	327.0	343.4	391.8	506.3
50°	268.9	269.5	272.5	279.8	287.7	294.3	298.6	303.4	308.8	331.9	392.4
52.5°	232.5	233.1	235.0	240.4	247.7	256.2	269.5	280.4	284.6	291.9	325.8
55°	209.5	209.5	212.0	215.0	216.8	222.9	231.9	244.1	259.8	265.9	280.4
57.5°	190.2	190.2	191.4	191.4	193.8	196.8	202.9	208.9	222.2	241.6	250.7
60°	170.8	170.8	172.0	172.0	175.0	176.2	180.5	184.1	191.4	204.7	222.9
62.5°	152.6	151.4	152.6	153.2	155.0	156.8	159.9	164.1	168.4	176.2	189.5
65°	134.4	133.8	135.0	136.3	137.5	139.9	141.7	144.7	148.4	152.6	159.3
67.5°	118.7	118.1	118.7	120.5	119.9	121.1	124.1	125.4	129.0	133.2	138.7
70°	102.9	101.7	102.9	102.9	103.6	105.4	105.4	108.4	111.4	113.8	118.7
72.5°	86.0	86.6	86.0	86.6	87.8	88.4	89.6	91.4	93.3	95.7	98.7
75°	71.5	71.5	72.1	72.7	73.9	73.9	74.5	75.7	76.9	78.1	81.8
77.5°	56.9	57.5	58.1	58.7	58.7	59.3	60.0	60.6	62.4	63.0	64.8
80°	43.6	44.2	44.2	44.2	45.4	44.2	45.4	46.6	46.6	47.2	48.4
82.5°	31.5	32.1	31.5	32.1	32.7	32.7	32.1	32.7	32.7	33.9	33.9
85°	20.6	19.4	19.4	19.4	19.4	19.4	20.0	20.6	20.0	20.0	20.6
87.5°	8.5	8.5	8.5	8.5	9.1	8.5	9.1	9.1	9.1	8.5	9.1
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°	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0
2.5°	1658.1	1653.2	1649.0	1641.7	1632.7	1619.3	1617.5	1618.1	1601.8	1586.0	1583.6
5°	1702.9	1695.0	1681.7	1666.0	1651.4	1629.0	1619.3	1612.7	1587.8	1566.6	1558.2
7.5°	1750.7	1732.0	1713.8	1689.0	1664.8	1635.7	1617.5	1603.6	1570.9	1543.0	1528.5
10°	1788.3	1765.3	1739.2	1707.7	1674.4	1638.7	1611.5	1589.7	1550.3	1515.8	1497.6
12.5°	1814.9	1788.9	1758.0	1720.5	1682.3	1635.1	1601.8	1572.7	1524.9	1483.7	1461.9
15°	1828.9	1801.0	1762.9	1721.7	1682.3	1632.7	1588.4	1546.1	1498.8	1447.3	1420.1
17.5°	1841.6	1805.2	1762.3	1715.0	1675.0	1623.0	1568.5	1513.4	1460.1	1411.6	1367.4
20°	1832.5	1801.6	1753.8	1704.7	1659.9	1599.3	1541.8	1484.9	1418.3	1362.0	1317.8
22.5°	1790.1	1784.7	1733.2	1680.5	1629.0	1570.9	1504.3	1448.0	1376.5	1309.9	1256.6
25°	1740.4	1733.8	1705.9	1649.6	1591.5	1530.9	1471.0	1406.2	1323.8	1254.8	1193.6
27.5°	1698.7	1683.5	1663.5	1610.9	1548.5	1487.9	1426.2	1363.2	1275.4	1198.5	1128.8
30°	1613.9	1628.4	1606.0	1569.7	1497.6	1438.9	1379.5	1311.1	1223.9	1135.5	1064.0
32.5°	1479.4	1567.3	1544.8	1515.8	1444.9	1380.7	1324.4	1257.2	1160.9	1073.7	999.8
35°	1360.7	1436.4	1487.3	1452.2	1389.8	1315.3	1257.8	1199.1	1098.5	1009.5	938.7
37.5°	1245.7	1326.2	1411.0	1378.9	1327.4	1247.5	1186.9	1128.8	1035.5	945.9	875.1
40°	1094.9	1212.4	1294.1	1306.9	1254.2	1173.6	1114.9	1054.9	972.6	883.5	807.8
42.5°	950.2	1101.0	1167.0	1232.4	1178.5	1102.8	1037.4	986.5	907.2	829.0	746.7
45°	798.8	970.1	1067.6	1117.9	1098.5	1029.5	958.0	909.0	842.4	769.7	691.6
47.5°	667.4	830.3	969.5	998.0	1016.8	949.0	882.3	832.7	775.1	715.2	640.7
50°	529.3	698.2	847.2	898.7	934.4	872.6	803.0	760.0	711.6	657.7	591.7
52.5°	411.8	569.9	726.1	813.9	826.0	793.9	729.7	687.3	648.6	600.1	540.2
55°	327.0	449.3	605.6	707.9	719.4	711.6	654.0	617.1	588.6	548.1	497.8
57.5°	271.3	349.4	490.5	608.6	625.6	632.8	585.6	552.3	526.9	494.8	449.3
60°	234.4	275.5	383.3	499.0	545.6	558.3	516.6	492.3	471.1	442.1	399.7
62.5°	207.1	225.9	293.1	404.5	464.5	475.4	454.2	436.0	418.5	390.6	353.1
65°	172.6	192.6	225.9	312.5	386.4	391.8	396.1	378.5	364.6	341.5	308.2
67.5°	144.7	160.5	182.3	239.8	310.1	325.8	336.7	328.8	315.5	292.5	264.0
70°	122.9	132.0	147.8	179.9	236.8	270.7	282.2	276.1	269.5	244.7	220.4
72.5°	102.3	109.6	118.7	138.1	178.6	215.0	231.9	228.9	221.6	202.9	182.9
75°	84.8	87.8	95.1	106.0	129.6	163.5	183.5	185.9	177.4	159.9	144.1
77.5°	66.6	69.6	73.9	80.5	95.7	118.7	135.0	141.1	135.7	122.9	107.2
80°	50.9	52.7	55.7	58.7	64.8	80.5	97.5	101.1	98.1	87.8	78.1
82.5°	33.9	35.1	37.5	40.0	43.0	50.3	64.8	67.2	66.6	57.5	50.9
85°	20.6	20.6	21.2	23.0	24.2	27.3	35.1	38.8	36.9	30.9	27.9
87.5°	8.5	9.1	8.5	8.5	8.5	9.1	11.5	15.7	12.1	9.1	8.5
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°	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0	1606.0
2.5°	1576.9	1574.5	1565.4	1557.0	1547.3	1535.8	1536.4	1538.2	1533.9	1532.7	1537.0
5°	1546.1	1537.6	1523.7	1509.7	1498.8	1484.3	1475.8	1480.0	1477.0	1471.6	1467.9
7.5°	1513.4	1501.2	1481.3	1463.7	1449.2	1421.9	1415.9	1408.6	1402.5	1390.4	1388.0
10°	1474.6	1457.0	1431.6	1406.8	1380.1	1358.9	1338.9	1330.5	1314.1	1303.2	1300.2
12.5°	1434.6	1405.6	1377.1	1340.8	1310.5	1279.6	1262.0	1249.9	1233.6	1206.9	1194.2
15°	1393.4	1349.2	1311.1	1271.1	1250.5	1208.7	1175.4	1137.9	1117.9	1073.1	1047.1
17.5°	1338.3	1287.5	1236.0	1203.3	1160.3	1102.2	1046.4	1027.1	996.8	967.7	938.7
20°	1263.9	1217.2	1168.2	1119.1	1053.7	986.5	965.3	932.0	898.7	881.1	866.0
22.5°	1195.4	1145.2	1087.0	1022.2	955.0	902.3	874.5	850.2	829.7	813.9	796.3
25°	1130.6	1078.5	995.6	929.6	870.8	832.1	818.1	786.7	764.9	753.3	738.2
27.5°	1059.2	987.7	921.1	852.7	800.6	778.8	746.7	721.9	698.8	676.4	671.0
30°	991.3	912.0	846.0	790.3	752.1	721.9	689.2	660.1	644.9	636.5	622.5
32.5°	924.1	843.6	781.8	738.2	697.0	664.9	634.0	618.9	595.9	577.1	565.0
35°	852.1	781.8	732.8	681.9	642.5	611.0	595.3	560.8	548.1	542.6	529.9
37.5°	788.5	726.1	676.4	637.7	594.7	569.2	538.4	530.5	513.5	499.0	494.8
40°	735.8	677.0	630.4	580.1	553.5	520.2	505.1	483.9	477.8	472.4	462.7
42.5°	678.3	628.0	574.7	540.8	501.4	486.3	462.7	456.6	442.1	436.6	433.0
45°	629.2	582.6	531.7	490.5	468.1	445.7	436.6	421.5	414.8	408.2	401.5
47.5°	581.4	532.9	492.3	453.6	428.8	418.5	402.1	391.2	383.9	377.3	370.6
50°	537.2	488.1	442.7	414.8	397.3	382.7	372.4	363.4	353.1	338.5	323.4
52.5°	489.3	445.1	408.2	380.9	365.2	351.2	342.2	326.4	306.4	290.7	283.4
55°	441.5	399.7	367.6	345.8	334.9	321.6	301.0	278.0	265.2	262.8	261.0
57.5°	400.9	361.5	331.9	314.9	302.2	278.6	256.8	248.3	244.7	243.4	242.2
60°	355.5	320.4	299.2	281.0	259.8	237.4	230.7	229.5	225.9	224.1	222.9
62.5°	313.7	283.4	264.0	242.2	219.8	215.6	210.7	207.7	205.9	201.7	199.8
65°	273.1	248.9	227.7	204.7	196.8	193.8	189.5	185.3	180.5	177.4	175.0
67.5°	234.4	210.7	188.3	179.9	175.6	170.8	165.3	159.3	156.8	152.6	152.0
70°	196.2	174.4	162.3	156.8	149.0	144.7	138.7	136.3	132.0	130.2	128.4
72.5°	159.9	144.1	139.3	131.4	126.0	119.3	116.3	113.8	111.4	108.4	108.4
75°	124.8	120.5	111.4	105.4	99.9	96.3	95.1	90.8	90.2	88.4	87.2
77.5°	99.3	90.8	87.8	81.1	77.5	75.7	74.5	72.1	69.6	69.0	68.4
80°	70.2	66.0	62.4	59.3	56.3	55.1	53.9	53.3	52.1	50.9	50.3
82.5°	46.0	43.6	41.2	39.4	38.8	36.9	35.7	35.1	33.9	33.9	33.9
85°	24.8	24.2	23.0	21.8	20.6	20.6	20.0	19.4	19.4	17.6	17.6
87.5°	7.9	7.9	7.3	7.3	6.1	6.7	6.1	6.1	5.5	6.1	6.1
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: P243104

CATALOG NUMBER: S121RDR-H1025D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1606.0	1606.0	1606.0	1606.0
2.5°	1532.1	1532.1	1529.7	1532.1
5°	1465.5	1460.1	1458.2	1457.0
7.5°	1380.7	1375.9	1371.0	1366.2
10°	1294.1	1286.9	1282.6	1279.0
12.5°	1181.5	1172.4	1155.5	1160.3
15°	1042.8	1043.4	1004.1	1047.7
17.5°	929.6	932.6	916.9	914.4
20°	857.5	856.3	850.2	843.0
22.5°	783.6	778.2	775.8	764.2
25°	714.6	704.9	707.9	691.6
27.5°	664.3	656.5	654.0	652.8
30°	614.1	597.7	592.3	595.9
32.5°	563.2	562.0	560.2	560.8
35°	520.2	517.8	512.3	512.3
37.5°	490.5	491.1	488.1	485.7
40°	454.2	451.2	450.6	446.9
42.5°	428.1	422.1	419.7	420.3
45°	397.9	394.2	391.2	392.4
47.5°	362.1	358.5	351.8	350.0
50°	313.7	308.8	305.8	302.8
52.5°	277.4	276.8	275.5	274.9
55°	259.8	258.0	258.0	258.0
57.5°	241.6	240.4	239.8	241.0
60°	221.6	220.4	218.0	218.0
62.5°	196.8	195.6	195.0	192.6
65°	172.0	171.4	170.2	170.8
67.5°	149.0	148.4	148.4	146.6
70°	126.6	126.6	124.8	126.0
72.5°	106.0	105.4	105.4	105.4
75°	86.0	85.4	84.8	84.8
77.5°	67.8	67.8	66.6	66.6
80°	49.1	49.1	48.4	49.7
82.5°	32.7	33.9	32.7	32.7
85°	17.6	18.2	18.2	18.2
87.5°	5.5	4.8	4.8	4.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)