

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: P242249

Luminaire Tested: **S121RDR-S1025D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242249
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-28)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121RDR-S1025D940-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3184.8 lumens
Efficiency: N/A
Efficacy: 77.5 lumens/watt
Spacing Criteria (0/90/45): 0.96 / 1.23 / 1.1
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

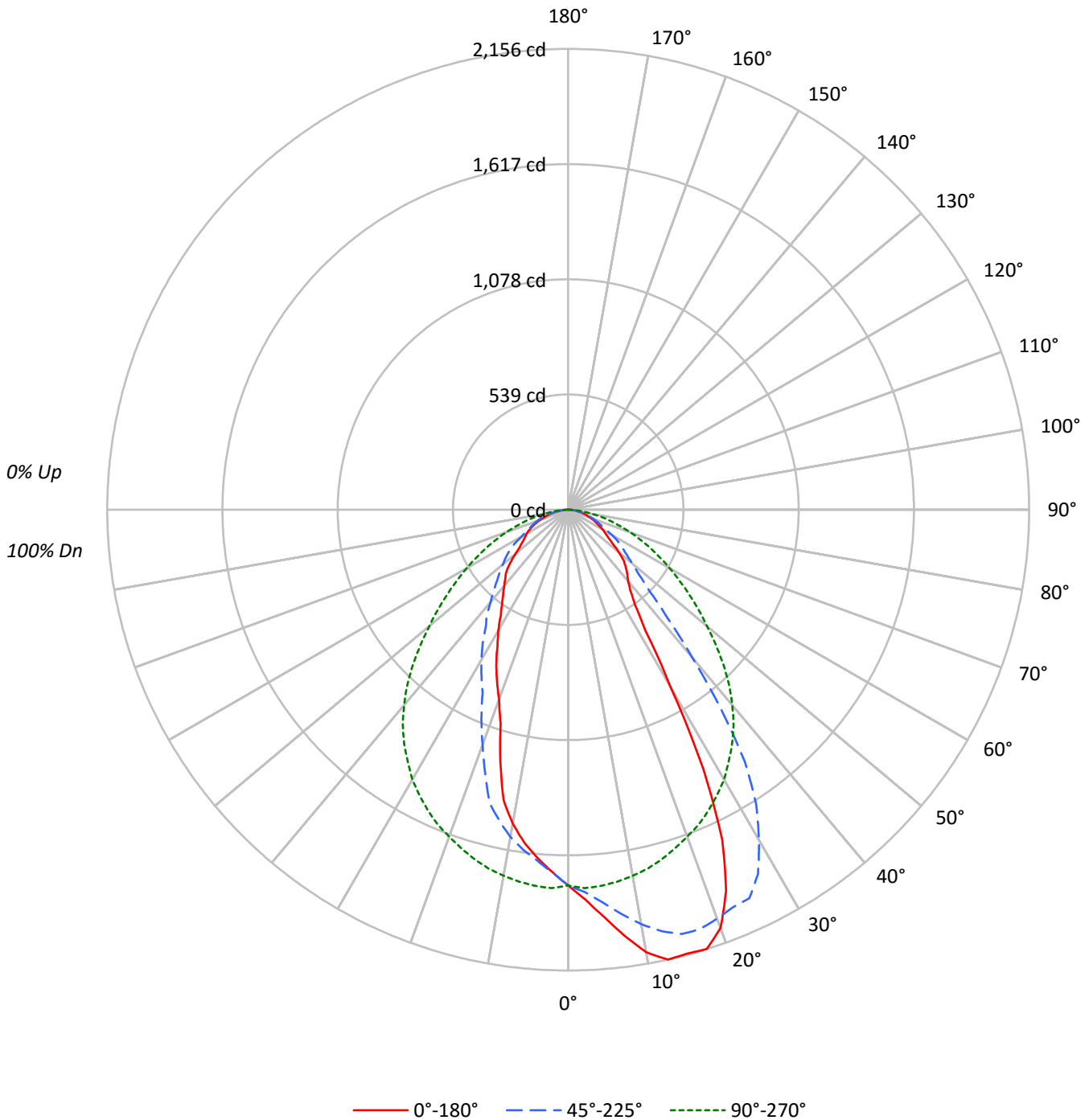
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89	87
2	102	95	89	84	100	93	88	83	90	85	82	87	83	80	84	81	78	76
3	94	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	68	67
4	88	77	69	64	85	76	69	63	73	67	62	71	66	61	69	65	61	59
5	81	70	62	56	79	69	62	56	67	60	55	65	59	55	63	58	54	52
6	76	64	56	50	74	63	56	50	61	55	50	60	54	49	58	53	49	47
7	71	59	51	45	69	58	51	45	57	50	45	55	49	45	54	48	44	43
8	67	54	47	41	65	54	46	41	52	46	41	51	45	41	50	45	40	39
9	63	50	43	38	61	50	43	38	49	42	37	48	42	37	47	41	37	35
10	59	47	40	35	58	46	39	35	45	39	35	44	39	34	44	38	34	33

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	52083	52083	52083
5°	56842	52538	48665
10°	63266	52330	44853
15°	65960	51933	37543
20°	65676	51320	29797
25°	55695	50749	26010
30°	32783	49876	22338
35°	19695	48357	19504
40°	16868	46163	17993
45°	15948	43030	17113
50°	14257	39080	14806
55°	11881	35675	13379
60°	11046	32504	13316
65°	10194	29607	12879
70°	9616	26674	12137
75°	9078	23606	11047
80°	8122	19725	9692
85°	7649	15502	7649



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	168.5	5.3
10°-20°	480.1	15.1
20°-30°	655.7	20.6
30°-40°	610.9	19.2
40°-50°	505.0	15.9
50°-60°	372.4	11.7
60°-70°	238.1	7.5
70°-80°	122.5	3.8
80°-90°	31.5	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°	1304.3	41.0
0°-40°	1915.3	60.1
0°-60°	2792.7	87.7
0°-90°	3184.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3184.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1758	1758	1758	1758	1758	
5°	1911	1844	1766	1649	1636	188
15°	2150	2055	1693	1420	1224	606
25°	1704	2005	1552	948	796	740
35°	544	1441	1337	672	539	370
45°	381	537	1027	470	408	292
55°	230	308	691	336	259	212
65°	145	168	422	196	184	145
75°	79	87	206	108	96	83
85°	22	23	46	26	22	25
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°	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8
2.5°	1825.2	1823.9	1825.9	1824.5	1823.2	1819.9	1817.3	1809.4	1797.5	1790.8	1797.5
5°	1911.1	1916.4	1914.4	1911.8	1905.8	1900.5	1888.7	1881.4	1860.2	1843.7	1848.3
7.5°	2008.9	2015.5	2006.9	2001.0	1997.7	1982.5	1969.3	1948.8	1925.7	1907.2	1896.6
10°	2102.8	2104.7	2102.1	2096.8	2085.6	2069.1	2049.9	2026.8	1997.7	1969.3	1950.1
12.5°	2155.6	2158.9	2162.9	2153.6	2145.1	2131.8	2112.0	2088.9	2053.2	2020.2	1998.3
15°	2150.3	2153.0	2160.3	2156.9	2153.0	2147.0	2135.8	2116.6	2091.5	2055.2	2024.1
17.5°	2154.3	2156.3	2159.6	2147.7	2141.1	2133.8	2119.3	2106.1	2084.9	2056.5	2033.4
20°	2082.9	2115.3	2111.3	2127.2	2133.8	2133.2	2119.3	2094.2	2065.1	2036.0	2025.4
22.5°	1929.6	1955.4	1958.7	1983.1	2013.5	2038.0	2068.4	2079.6	2057.2	2013.5	1999.0
25°	1703.6	1722.1	1740.6	1775.6	1808.0	1876.1	1938.2	1985.1	2010.9	2005.0	1976.5
27.5°	1369.2	1349.4	1422.8	1463.1	1553.6	1652.7	1740.0	1825.9	1866.8	1921.7	1949.4
30°	958.2	956.2	1011.7	1081.8	1217.2	1308.4	1471.7	1609.8	1717.5	1784.9	1860.2
32.5°	672.7	682.6	723.6	766.6	841.2	989.9	1114.8	1305.1	1488.8	1636.2	1728.7
35°	544.5	545.8	555.1	580.9	626.5	709.1	806.2	991.2	1240.4	1440.6	1578.7
37.5°	477.1	481.1	483.7	498.3	514.8	549.8	611.3	739.5	945.6	1169.0	1408.9
40°	436.1	439.5	442.1	446.7	456.6	473.2	513.5	574.9	693.9	899.4	1166.4
42.5°	408.4	407.1	413.0	415.0	420.3	429.5	447.4	480.4	549.1	688.6	918.6
45°	380.6	382.6	382.6	385.3	389.9	395.2	402.4	422.9	458.0	537.3	717.7
47.5°	351.6	350.9	354.9	356.8	361.5	366.1	371.4	382.0	402.4	448.7	553.1
50°	309.3	310.6	317.9	324.5	331.1	337.0	343.6	350.2	363.5	388.6	452.7
52.5°	264.3	264.3	272.3	276.9	286.1	300.7	311.9	321.8	330.4	343.0	381.3
55°	230.0	230.6	233.3	237.2	243.8	251.1	265.7	282.8	297.4	307.9	329.1
57.5°	206.2	206.8	207.5	210.8	214.1	216.8	225.3	238.6	257.7	276.9	289.4
60°	186.4	185.7	185.7	187.7	190.3	193.6	198.2	203.5	214.1	234.6	257.1
62.5°	163.9	165.2	165.2	167.2	169.2	172.5	174.5	179.7	185.7	194.9	218.1
65°	145.4	146.7	145.4	147.4	148.7	150.7	154.0	156.6	161.9	167.9	177.1
67.5°	126.9	127.5	128.9	129.5	130.8	131.5	134.1	137.5	140.8	144.7	152.0
70°	111.0	111.0	111.0	112.3	113.7	113.7	115.6	117.0	120.3	124.2	128.2
72.5°	93.8	94.5	94.5	93.8	96.5	97.1	97.8	99.1	101.8	105.1	108.4
75°	79.3	78.0	78.0	78.6	80.6	80.6	81.3	81.9	83.9	86.6	88.6
77.5°	62.1	62.1	62.8	63.4	64.1	64.1	65.4	65.4	68.1	69.4	70.7
80°	47.6	48.9	49.6	48.9	48.9	49.6	49.6	50.9	51.5	52.2	53.5
82.5°	35.7	36.3	35.0	35.0	35.7	35.7	36.3	36.3	37.0	37.7	37.7
85°	22.5	22.5	23.1	22.5	23.1	22.5	22.5	23.8	23.1	23.1	23.8
87.5°	10.6	11.2	10.6	11.2	10.6	11.2	11.2	11.2	11.2	11.2	10.6
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°	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8
2.5°	1795.5	1794.8	1791.5	1784.2	1779.0	1769.0	1769.0	1772.3	1755.2	1743.3	1742.6
5°	1837.1	1830.5	1819.3	1805.4	1792.8	1775.6	1769.0	1766.4	1743.3	1725.4	1719.5
7.5°	1881.4	1864.9	1845.7	1823.2	1802.1	1777.6	1765.1	1755.2	1725.4	1703.6	1690.4
10°	1927.6	1901.2	1871.5	1839.1	1810.0	1777.0	1756.5	1739.3	1704.9	1674.5	1659.3
12.5°	1968.6	1931.6	1893.9	1851.6	1812.0	1770.4	1741.9	1719.5	1679.2	1642.8	1624.3
15°	1987.8	1948.1	1917.1	1858.9	1805.4	1763.1	1726.7	1693.0	1650.1	1609.8	1581.4
17.5°	2004.3	1960.7	1919.7	1864.9	1802.7	1747.9	1704.3	1661.3	1615.1	1572.8	1537.7
20°	1999.7	1962.7	1912.4	1854.3	1795.5	1732.0	1682.5	1627.6	1570.1	1527.2	1490.2
22.5°	1973.2	1942.8	1890.6	1835.1	1778.3	1710.2	1654.1	1594.6	1523.9	1477.0	1435.3
25°	1939.5	1910.5	1858.9	1801.4	1745.3	1679.2	1613.1	1552.3	1476.3	1420.1	1366.6
27.5°	1913.1	1869.5	1817.9	1753.8	1699.7	1636.9	1567.5	1506.0	1424.1	1362.0	1299.9
30°	1882.7	1833.1	1769.7	1701.6	1644.1	1586.7	1519.2	1457.8	1367.3	1296.5	1219.2
32.5°	1795.5	1796.1	1720.8	1644.8	1583.3	1521.9	1461.8	1396.3	1306.5	1223.2	1143.9
35°	1681.8	1726.1	1670.6	1583.3	1507.4	1450.5	1401.0	1336.9	1237.1	1151.2	1061.3
37.5°	1529.8	1607.8	1614.4	1523.9	1439.9	1373.2	1324.3	1270.8	1170.3	1077.8	988.6
40°	1377.8	1480.9	1521.9	1459.1	1367.9	1291.3	1242.4	1193.5	1099.0	999.2	916.6
42.5°	1191.5	1358.7	1409.5	1391.0	1293.2	1210.6	1159.1	1114.8	1023.0	925.2	843.2
45°	981.3	1207.3	1281.3	1300.5	1217.9	1129.4	1069.9	1026.9	946.3	860.4	775.2
47.5°	788.4	1036.8	1159.1	1178.9	1135.3	1049.4	981.3	936.4	872.3	798.3	713.7
50°	601.4	855.8	1030.9	1061.3	1050.7	963.5	900.7	847.8	798.9	732.9	653.6
52.5°	478.4	684.0	892.1	949.0	952.3	883.5	817.4	769.2	721.6	669.4	597.4
55°	382.0	528.7	739.5	835.9	845.2	797.6	736.8	690.6	654.9	606.0	545.2
57.5°	321.8	409.1	592.1	722.3	726.3	713.0	654.9	616.6	586.8	544.5	491.0
60°	274.9	324.5	456.6	608.6	628.4	628.4	582.2	548.5	520.1	488.4	437.5
62.5°	237.9	265.0	346.3	483.7	534.6	542.5	513.5	483.7	462.6	430.9	383.9
65°	200.2	220.7	268.3	374.0	444.1	458.6	444.1	422.3	405.7	372.7	335.7
67.5°	164.5	184.4	214.1	283.5	360.2	378.0	375.4	364.1	346.9	322.5	283.5
70°	136.1	148.0	169.8	210.1	282.8	309.9	317.9	307.9	292.7	266.3	237.9
72.5°	112.3	121.6	132.2	161.2	211.5	247.2	260.4	255.1	243.8	218.7	194.9
75°	91.9	97.8	105.1	118.9	152.0	192.3	207.5	206.2	194.9	173.8	154.6
77.5°	74.0	76.0	81.3	89.9	106.4	142.7	154.6	158.6	150.0	132.2	117.0
80°	55.5	58.2	60.8	65.4	73.4	94.5	109.7	115.6	108.4	97.8	82.6
82.5°	39.0	39.6	42.3	44.9	48.9	57.5	73.4	80.0	73.4	62.1	57.5
85°	24.5	23.8	24.5	25.1	29.1	31.1	41.0	45.6	44.3	37.7	32.4
87.5°	11.2	11.2	10.6	11.2	10.6	12.6	14.5	21.1	15.9	13.9	12.6
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°	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8	1757.8
2.5°	1737.3	1735.3	1728.7	1719.5	1711.5	1698.3	1698.3	1701.6	1701.0	1702.3	1701.0
5°	1709.6	1700.3	1690.4	1677.8	1666.0	1648.8	1646.8	1648.1	1647.4	1646.8	1642.8
7.5°	1673.9	1663.3	1650.8	1634.9	1621.7	1605.2	1600.5	1599.2	1593.9	1591.9	1586.7
10°	1639.5	1627.0	1610.4	1591.3	1573.4	1554.3	1542.4	1535.8	1527.2	1517.9	1510.0
12.5°	1601.2	1584.7	1563.5	1540.4	1510.7	1489.5	1471.7	1460.4	1448.5	1432.7	1421.4
15°	1560.2	1526.5	1501.4	1463.7	1427.4	1420.1	1393.0	1357.3	1354.7	1277.4	1250.3
17.5°	1505.4	1477.6	1430.7	1381.8	1332.2	1291.9	1292.6	1196.1	1166.4	1165.7	1118.1
20°	1448.5	1410.2	1356.0	1306.5	1254.3	1171.0	1104.9	1073.2	1024.9	1006.4	979.3
22.5°	1381.8	1331.6	1268.1	1200.7	1128.0	1060.6	995.9	965.5	941.0	920.5	909.3
25°	1302.5	1251.6	1175.6	1091.7	1010.4	947.6	911.9	898.1	856.4	841.9	828.0
27.5°	1222.5	1167.0	1067.9	987.3	920.5	877.6	840.6	817.4	797.6	760.6	744.1
30°	1146.5	1057.3	975.4	901.4	851.1	810.8	783.7	736.8	709.1	691.9	684.6
32.5°	1063.9	968.8	894.8	830.7	779.1	744.1	703.8	672.1	659.5	637.0	604.7
35°	979.3	892.8	815.5	763.9	719.6	672.1	647.0	616.6	584.8	567.7	565.0
37.5°	897.4	815.5	760.0	705.8	652.2	624.5	587.5	555.1	543.9	528.0	510.8
40°	823.4	753.3	701.8	639.7	607.3	564.3	535.9	519.4	492.3	486.4	481.1
42.5°	762.6	702.5	644.3	588.8	551.1	516.8	491.7	472.5	463.9	449.4	444.7
45°	701.1	645.6	586.2	542.5	499.6	470.5	453.3	436.8	426.9	422.9	415.0
47.5°	645.6	591.4	536.6	483.1	454.0	434.8	415.7	407.1	401.1	392.5	387.9
50°	592.8	532.6	481.1	447.4	416.3	399.1	386.6	378.7	369.4	360.2	346.9
52.5°	539.2	487.7	438.1	402.4	379.3	368.1	356.2	347.6	329.1	311.3	300.0
55°	485.0	432.2	391.9	364.8	348.3	336.4	322.5	297.4	280.2	270.3	265.0
57.5°	436.1	388.6	352.9	330.4	318.5	298.7	274.2	258.4	249.8	245.8	243.2
60°	383.9	343.0	313.2	296.1	277.5	251.1	237.9	230.0	227.3	226.0	224.0
62.5°	339.0	302.7	279.5	260.4	233.9	220.1	212.8	208.8	208.8	206.8	205.5
65°	291.4	263.0	243.2	215.4	201.6	195.6	193.0	191.0	189.0	188.3	185.7
67.5°	252.4	227.3	201.6	187.0	178.4	175.1	172.5	171.8	169.2	167.2	165.2
70°	212.8	188.3	167.2	160.6	156.0	154.6	152.0	149.3	147.4	144.7	143.4
72.5°	173.1	150.0	142.7	139.4	134.8	132.8	129.5	127.5	124.2	122.9	121.6
75°	132.2	122.9	118.9	116.3	113.0	108.4	107.1	105.1	103.8	101.8	99.8
77.5°	105.1	99.8	95.2	91.9	89.2	85.9	83.3	82.6	81.3	79.3	78.6
80°	78.6	74.7	72.7	69.4	66.1	64.1	62.8	62.1	60.1	59.5	58.8
82.5°	54.2	50.9	49.6	45.6	44.3	44.3	43.6	42.3	41.0	40.3	39.6
85°	30.4	29.1	27.1	27.8	25.8	25.8	25.1	24.5	23.8	23.1	22.5
87.5°	11.9	11.2	10.6	9.9	9.9	7.9	7.9	7.9	8.6	7.9	7.3
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: P242249

CATALOG NUMBER: S121RDR-S1025D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1757.8	1757.8	1757.8	1757.8
2.5°	1703.0	1704.3	1699.7	1697.0
5°	1642.8	1640.8	1638.2	1636.2
7.5°	1581.4	1579.4	1579.4	1571.5
10°	1506.7	1501.4	1497.4	1490.8
12.5°	1411.5	1403.6	1401.0	1393.0
15°	1231.8	1215.3	1204.0	1223.9
17.5°	1106.9	1063.9	1067.2	1050.7
20°	978.7	961.5	970.1	945.0
22.5°	895.4	884.9	874.9	869.7
25°	818.1	805.6	790.4	795.6
27.5°	721.0	721.0	711.1	715.0
30°	671.4	666.1	649.6	652.9
32.5°	594.1	587.5	585.5	586.8
35°	557.1	546.5	543.2	539.2
37.5°	505.5	501.6	502.2	499.6
40°	471.2	467.9	463.9	465.2
42.5°	441.4	439.5	435.5	436.1
45°	412.4	410.4	408.4	408.4
47.5°	380.0	376.0	372.7	368.7
50°	337.7	329.8	323.8	321.2
52.5°	292.1	288.1	284.2	284.2
55°	263.0	261.0	259.7	259.0
57.5°	242.5	241.2	241.2	239.2
60°	224.0	224.0	223.4	224.7
62.5°	206.2	204.2	204.9	204.9
65°	185.7	185.0	184.4	183.7
67.5°	163.9	163.2	163.9	162.6
70°	142.1	142.1	141.4	140.1
72.5°	119.6	120.9	119.6	118.9
75°	98.5	97.8	98.5	96.5
77.5°	78.6	76.0	77.3	78.0
80°	58.2	58.2	57.5	56.8
82.5°	39.0	39.6	38.3	38.3
85°	22.5	22.5	21.1	22.5
87.5°	6.6	6.6	6.6	7.9
90°	0.0	0.0	0.0	0.0

(END OF REPORT)