

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: P243094

Luminaire Tested: **S121RDR-H1025D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243094
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-H1025D840-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3320.8 lumens
Efficiency: N/A
Efficacy: 88.1 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

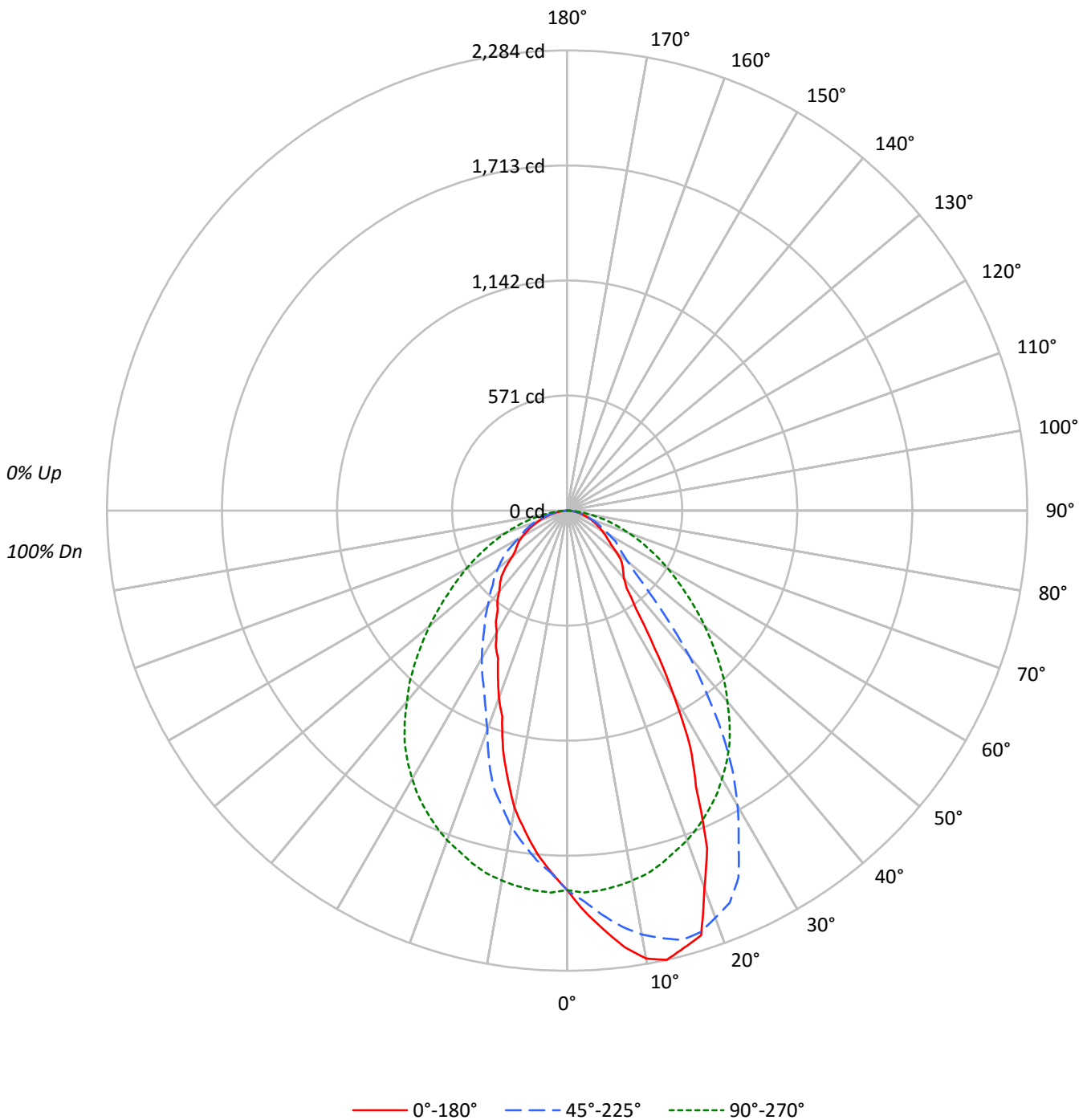
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	81	87	83	80	84	81	78	76
3	94	85	78	73	92	84	77	72	81	75	71	78	73	70	76	72	68	66
4	87	77	69	63	85	76	69	63	73	67	62	71	66	61	69	64	61	59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52
6	76	64	56	50	74	63	55	50	61	55	50	60	54	49	58	53	49	47
7	71	59	51	45	69	58	50	45	56	50	45	55	49	44	54	48	44	42
8	66	54	46	41	65	53	46	41	52	46	41	51	45	41	50	44	40	39
9	62	50	43	38	61	50	42	38	49	42	37	48	42	37	47	41	37	35
10	59	47	39	35	58	46	39	35	45	39	34	44	38	34	44	38	34	33

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	55813	55813	55813
5°	62109	56259	50831
10°	67915	56097	45133
15°	68893	55626	37693
20°	62798	54915	31175
25°	49461	53920	26517
30°	36160	52613	23912
35°	21580	50871	21735
40°	16922	47857	20275
45°	16309	44672	19288
50°	14539	41090	16369
55°	12697	37390	15632
60°	11870	34222	15153
65°	11056	31122	14043
70°	10456	28060	12795
75°	9593	24968	11379
80°	8719	20237	9931
85°	8193	15468	7241



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.8	5.4
10°-20°	501.6	15.1
20°-30°	667.0	20.1
30°-40°	636.3	19.2
40°-50°	528.0	15.9
50°-60°	392.7	11.8
60°-70°	254.3	7.7
70°-80°	129.4	3.9
80°-90°	31.7	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°	1348.5	40.6
0°-40°	1984.8	59.8
0°-60°	2905.5	87.5
0°-90°	3320.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3320.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1884	1884	1884	1884	1884	
5°	2088	2015	1892	1741	1709	205
15°	2246	2206	1813	1418	1229	625
25°	1513	2011	1649	976	811	702
35°	597	1336	1406	717	601	406
45°	389	576	1066	523	460	297
55°	246	312	724	377	303	223
65°	158	179	444	227	200	157
75°	84	92	218	113	99	89
85°	24	23	46	24	21	26
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°	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7
2.5°	1991.6	1986.7	1992.4	1990.2	1981.0	1983.1	1971.8	1964.7	1947.6	1941.2	1941.2
5°	2088.2	2095.4	2091.1	2092.5	2083.3	2077.6	2065.5	2052.0	2030.7	2015.1	2009.4
7.5°	2184.8	2187.0	2189.1	2183.4	2172.8	2162.8	2145.8	2125.9	2102.5	2082.6	2066.9
10°	2257.3	2262.3	2259.4	2250.9	2243.1	2228.2	2209.7	2188.4	2162.8	2136.5	2117.4
12.5°	2284.3	2288.5	2294.9	2290.0	2289.3	2282.2	2263.7	2237.4	2206.2	2173.5	2151.5
15°	2245.9	2243.1	2260.1	2255.9	2254.5	2251.6	2256.6	2250.9	2234.6	2206.2	2179.2
17.5°	2210.4	2209.0	2226.0	2230.3	2223.9	2214.7	2209.0	2201.9	2194.1	2194.8	2191.2
20°	1991.6	2035.0	2043.5	2066.2	2114.5	2146.5	2178.5	2177.0	2154.3	2150.8	2149.3
22.5°	1815.5	1831.8	1824.0	1861.0	1887.2	1944.8	2000.9	2071.9	2119.5	2107.4	2099.6
25°	1512.9	1564.1	1587.5	1633.7	1700.4	1773.6	1805.6	1880.8	1954.0	2010.8	2054.2
27.5°	1325.4	1336.8	1351.7	1399.3	1424.1	1490.9	1610.2	1712.5	1780.7	1842.5	1956.8
30°	1056.9	1061.9	1113.7	1140.0	1213.2	1278.5	1382.2	1464.6	1601.7	1693.3	1781.4
32.5°	806.9	802.6	859.4	890.0	962.4	1050.5	1166.3	1243.0	1377.2	1527.1	1632.2
35°	596.6	595.9	626.5	647.8	727.3	794.8	941.8	1042.0	1189.0	1336.1	1471.7
37.5°	485.8	485.1	491.5	510.0	543.4	619.4	690.4	838.9	982.3	1127.2	1297.0
40°	437.5	441.1	442.5	451.0	462.4	485.1	528.5	632.2	772.8	945.4	1115.9
42.5°	412.0	412.0	413.4	415.5	421.2	427.6	453.9	493.7	606.6	744.4	935.5
45°	389.2	389.9	391.4	392.8	391.4	394.9	407.0	423.3	467.4	576.0	760.7
47.5°	362.2	361.5	365.1	367.2	370.1	374.3	375.0	383.6	402.7	459.6	593.8
50°	315.4	316.1	319.6	328.2	337.4	345.2	350.2	355.9	362.2	389.2	460.3
52.5°	272.8	273.5	275.6	282.0	290.5	300.5	316.1	328.9	333.8	342.4	382.1
55°	245.8	245.8	248.6	252.2	254.3	261.4	272.0	286.2	304.7	311.8	328.9
57.5°	223.0	223.0	224.5	224.5	227.3	230.8	237.9	245.0	260.7	283.4	294.1
60°	200.3	200.3	201.7	201.7	205.3	206.7	211.7	215.9	224.5	240.1	261.4
62.5°	179.0	177.6	179.0	179.7	181.8	184.0	187.5	192.5	197.5	206.7	222.3
65°	157.7	157.0	158.4	159.8	161.2	164.1	166.2	169.8	174.0	179.0	186.8
67.5°	139.2	138.5	139.2	141.3	140.6	142.1	145.6	147.0	151.3	156.3	162.7
70°	120.7	119.3	120.7	120.7	121.5	123.6	123.6	127.1	130.7	133.5	139.2
72.5°	100.9	101.6	100.9	101.6	103.0	103.7	105.1	107.3	109.4	112.2	115.8
75°	83.8	83.8	84.5	85.2	86.7	86.7	87.4	88.8	90.2	91.6	95.9
77.5°	66.8	67.5	68.2	68.9	68.9	69.6	70.3	71.0	73.2	73.9	76.0
80°	51.1	51.9	51.9	51.9	53.3	51.9	53.3	54.7	54.7	55.4	56.8
82.5°	36.9	37.6	36.9	37.6	38.4	38.4	37.6	38.4	38.4	39.8	39.8
85°	24.1	22.7	22.7	22.7	22.7	22.7	23.4	24.1	23.4	23.4	24.1
87.5°	9.9	9.9	9.9	9.9	10.7	9.9	10.7	10.7	10.7	9.9	10.7
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7
2.5°	1944.8	1939.1	1934.1	1925.6	1914.9	1899.3	1897.2	1897.9	1878.7	1860.2	1857.4
5°	1997.3	1988.1	1972.5	1954.0	1937.0	1910.7	1899.3	1891.5	1862.4	1837.5	1827.6
7.5°	2053.4	2031.4	2010.1	1981.0	1952.6	1918.5	1897.2	1880.8	1842.5	1809.8	1792.8
10°	2097.5	2070.5	2039.9	2003.0	1963.9	1922.0	1890.1	1864.5	1818.3	1777.9	1756.5
12.5°	2128.7	2098.2	2062.0	2017.9	1973.2	1917.8	1878.7	1844.6	1788.5	1740.2	1714.6
15°	2145.1	2112.4	2067.7	2019.4	1973.2	1914.9	1863.1	1813.4	1758.0	1697.6	1665.6
17.5°	2160.0	2117.4	2066.9	2011.5	1964.7	1903.6	1839.6	1775.0	1712.5	1655.7	1603.8
20°	2149.3	2113.1	2057.0	1999.5	1946.9	1875.9	1808.4	1741.6	1663.5	1597.4	1545.6
22.5°	2099.6	2093.2	2032.8	1971.1	1910.7	1842.5	1764.4	1698.3	1614.5	1536.4	1473.8
25°	2041.4	2033.6	2000.9	1934.8	1866.6	1795.6	1725.3	1649.3	1552.7	1471.7	1400.0
27.5°	1992.4	1974.6	1951.2	1889.4	1816.2	1745.2	1672.7	1598.9	1495.9	1405.7	1324.0
30°	1892.9	1910.0	1883.7	1841.1	1756.5	1687.6	1618.0	1537.8	1435.5	1331.8	1248.0
32.5°	1735.2	1838.2	1811.9	1777.9	1694.7	1619.5	1553.4	1474.6	1361.6	1259.3	1172.7
35°	1596.0	1684.8	1744.5	1703.3	1630.1	1542.7	1475.3	1406.4	1288.5	1184.1	1100.9
37.5°	1461.1	1555.5	1655.0	1617.3	1557.0	1463.2	1392.2	1324.0	1214.6	1109.5	1026.4
40°	1284.2	1422.0	1517.9	1532.8	1471.0	1376.5	1307.6	1237.3	1140.7	1036.3	947.5
42.5°	1114.4	1291.3	1368.7	1445.4	1382.2	1293.4	1216.7	1157.1	1064.0	972.4	875.8
45°	936.9	1137.9	1252.2	1311.2	1288.5	1207.5	1123.7	1066.1	988.0	902.8	811.1
47.5°	782.7	973.8	1137.2	1170.6	1192.6	1113.0	1034.9	976.6	909.2	838.9	751.5
50°	620.8	819.0	993.7	1054.1	1096.0	1023.5	941.8	891.4	834.6	771.4	694.0
52.5°	483.0	668.4	851.6	954.6	968.8	931.2	855.9	806.2	760.7	703.9	633.6
55°	383.6	527.0	710.3	830.3	843.8	834.6	767.1	723.8	690.4	642.8	583.9
57.5°	318.2	409.8	575.3	713.8	733.7	742.3	686.8	647.8	618.0	580.3	527.0
60°	274.9	323.2	449.6	585.3	640.0	654.9	605.9	577.5	552.6	518.5	468.8
62.5°	242.9	264.9	343.8	474.5	544.8	557.6	532.7	511.4	490.8	458.1	414.1
65°	202.4	225.9	264.9	366.5	453.2	459.6	464.5	443.9	427.6	400.6	361.5
67.5°	169.8	188.2	213.8	281.3	363.7	382.1	394.9	385.7	370.1	343.1	309.7
70°	144.2	154.8	173.3	211.0	277.7	317.5	331.0	323.9	316.1	287.0	258.5
72.5°	120.0	128.6	139.2	161.9	209.5	252.2	272.0	268.5	260.0	237.9	214.5
75°	99.4	103.0	111.5	124.3	152.0	191.8	215.2	218.1	208.1	187.5	169.0
77.5°	78.1	81.7	86.7	94.5	112.2	139.2	158.4	165.5	159.1	144.2	125.7
80°	59.7	61.8	65.3	68.9	76.0	94.5	114.4	118.6	115.1	103.0	91.6
82.5°	39.8	41.2	44.0	46.9	50.4	59.0	76.0	78.8	78.1	67.5	59.7
85°	24.1	24.1	24.9	27.0	28.4	32.0	41.2	45.5	43.3	36.2	32.7
87.5°	9.9	10.7	9.9	9.9	9.9	10.7	13.5	18.5	14.2	10.7	9.9
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°	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7	1883.7
2.5°	1849.6	1846.8	1836.1	1826.2	1814.8	1801.3	1802.0	1804.1	1799.2	1797.7	1802.7
5°	1813.4	1803.4	1787.1	1770.7	1758.0	1740.9	1731.0	1735.9	1732.4	1726.0	1721.7
7.5°	1775.0	1760.8	1737.4	1716.8	1699.7	1667.8	1660.7	1652.1	1645.0	1630.8	1628.0
10°	1729.6	1709.0	1679.1	1650.0	1618.7	1593.9	1570.4	1560.5	1541.3	1528.5	1525.0
12.5°	1682.7	1648.6	1615.2	1572.6	1537.1	1500.8	1480.2	1466.0	1446.9	1415.6	1400.7
15°	1634.4	1582.5	1537.8	1490.9	1466.7	1417.7	1378.7	1334.6	1311.2	1258.6	1228.1
17.5°	1569.7	1510.1	1449.7	1411.3	1360.9	1292.7	1227.4	1204.6	1169.1	1135.0	1100.9
20°	1482.4	1427.7	1370.1	1312.6	1235.9	1157.1	1132.2	1093.1	1054.1	1033.5	1015.7
22.5°	1402.1	1343.2	1275.0	1199.0	1120.1	1058.3	1025.7	997.2	973.1	954.6	934.0
25°	1326.1	1265.0	1167.7	1090.3	1021.4	975.9	959.6	922.7	897.1	883.6	865.8
27.5°	1242.3	1158.5	1080.3	1000.1	939.0	913.4	875.8	846.7	819.7	793.4	787.0
30°	1162.7	1069.7	992.3	926.9	882.2	846.7	808.3	774.2	756.5	746.5	730.2
32.5°	1083.9	989.4	917.0	865.8	817.5	779.9	743.7	725.9	698.9	676.9	662.7
35°	999.4	917.0	859.4	799.8	753.6	716.7	698.2	657.7	642.8	636.4	621.5
37.5°	924.8	851.6	793.4	747.9	697.5	667.7	631.4	622.2	602.3	585.3	580.3
40°	863.0	794.1	739.4	680.5	649.2	610.1	592.4	567.5	560.4	554.0	542.7
42.5°	795.5	736.6	674.1	634.3	588.1	570.4	542.7	535.6	518.5	512.1	507.9
45°	738.0	683.3	623.6	575.3	549.1	522.8	512.1	494.4	486.5	478.7	470.9
47.5°	681.9	625.1	577.5	532.0	502.9	490.8	471.6	458.8	450.3	442.5	434.7
50°	630.0	572.5	519.2	486.5	465.9	448.9	436.8	426.2	414.1	397.1	379.3
52.5°	573.9	522.1	478.7	446.8	428.3	412.0	401.3	382.8	359.4	340.9	332.4
55°	517.8	468.8	431.1	405.6	392.8	377.2	353.0	326.0	311.1	308.3	306.1
57.5°	470.2	424.0	389.2	369.4	354.4	326.7	301.2	291.2	287.0	285.5	284.1
60°	416.9	375.7	350.9	329.6	304.7	278.4	270.6	269.2	264.9	262.8	261.4
62.5°	367.9	332.4	309.7	284.1	257.8	252.9	247.2	243.6	241.5	236.5	234.4
65°	320.3	291.9	267.1	240.1	230.8	227.3	222.3	217.3	211.7	208.1	205.3
67.5°	274.9	247.2	220.9	211.0	206.0	200.3	193.9	186.8	184.0	179.0	178.3
70°	230.1	204.6	190.4	184.0	174.7	169.8	162.7	159.8	154.8	152.7	150.6
72.5°	187.5	169.0	163.4	154.1	147.7	139.9	136.4	133.5	130.7	127.1	127.1
75°	146.3	141.3	130.7	123.6	117.2	112.9	111.5	106.5	105.8	103.7	102.3
77.5°	116.5	106.5	103.0	95.2	90.9	88.8	87.4	84.5	81.7	81.0	80.3
80°	82.4	77.4	73.2	69.6	66.1	64.6	63.2	62.5	61.1	59.7	59.0
82.5°	54.0	51.1	48.3	46.2	45.5	43.3	41.9	41.2	39.8	39.8	39.8
85°	29.1	28.4	27.0	25.6	24.1	24.1	23.4	22.7	22.7	20.6	20.6
87.5°	9.2	9.2	8.5	8.5	7.1	7.8	7.1	7.1	6.4	7.1	7.1
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: P243094

CATALOG NUMBER: S121RDR-H1025D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1883.7	1883.7	1883.7	1883.7
2.5°	1797.0	1797.0	1794.2	1797.0
5°	1718.9	1712.5	1710.4	1709.0
7.5°	1619.5	1613.8	1608.1	1602.4
10°	1517.9	1509.4	1504.4	1500.1
12.5°	1385.8	1375.1	1355.2	1360.9
15°	1223.1	1223.8	1177.7	1228.8
17.5°	1090.3	1093.8	1075.4	1072.5
20°	1005.8	1004.3	997.2	988.7
22.5°	919.1	912.7	909.9	896.4
25°	838.1	826.8	830.3	811.1
27.5°	779.2	770.0	767.1	765.7
30°	720.2	701.1	694.7	698.9
32.5°	660.6	659.1	657.0	657.7
35°	610.1	607.3	600.9	600.9
37.5°	575.3	576.0	572.5	569.7
40°	532.7	529.2	528.5	524.2
42.5°	502.2	495.1	492.2	492.9
45°	466.7	462.4	458.8	460.3
47.5°	424.8	420.5	412.7	410.5
50°	367.9	362.2	358.7	355.1
52.5°	325.3	324.6	323.2	322.5
55°	304.7	302.6	302.6	302.6
57.5°	283.4	282.0	281.3	282.7
60°	260.0	258.5	255.7	255.7
62.5°	230.8	229.4	228.7	225.9
65°	201.7	201.0	199.6	200.3
67.5°	174.7	174.0	174.0	171.9
70°	148.5	148.5	146.3	147.7
72.5°	124.3	123.6	123.6	123.6
75°	100.9	100.2	99.4	99.4
77.5°	79.6	79.6	78.1	78.1
80°	57.5	57.5	56.8	58.2
82.5°	38.4	39.8	38.4	38.4
85°	20.6	21.3	21.3	21.3
87.5°	6.4	5.7	5.7	5.7
90°	0.0	0.0	0.0	0.0

(END OF REPORT)