

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: P242234

Luminaire Tested: **S121RDR-S1025D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242234  
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-S1025D840-X4F0-XX-UDD-A-W  
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3606.8 lumens  
Efficiency: N/A  
Efficacy: 87.8 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

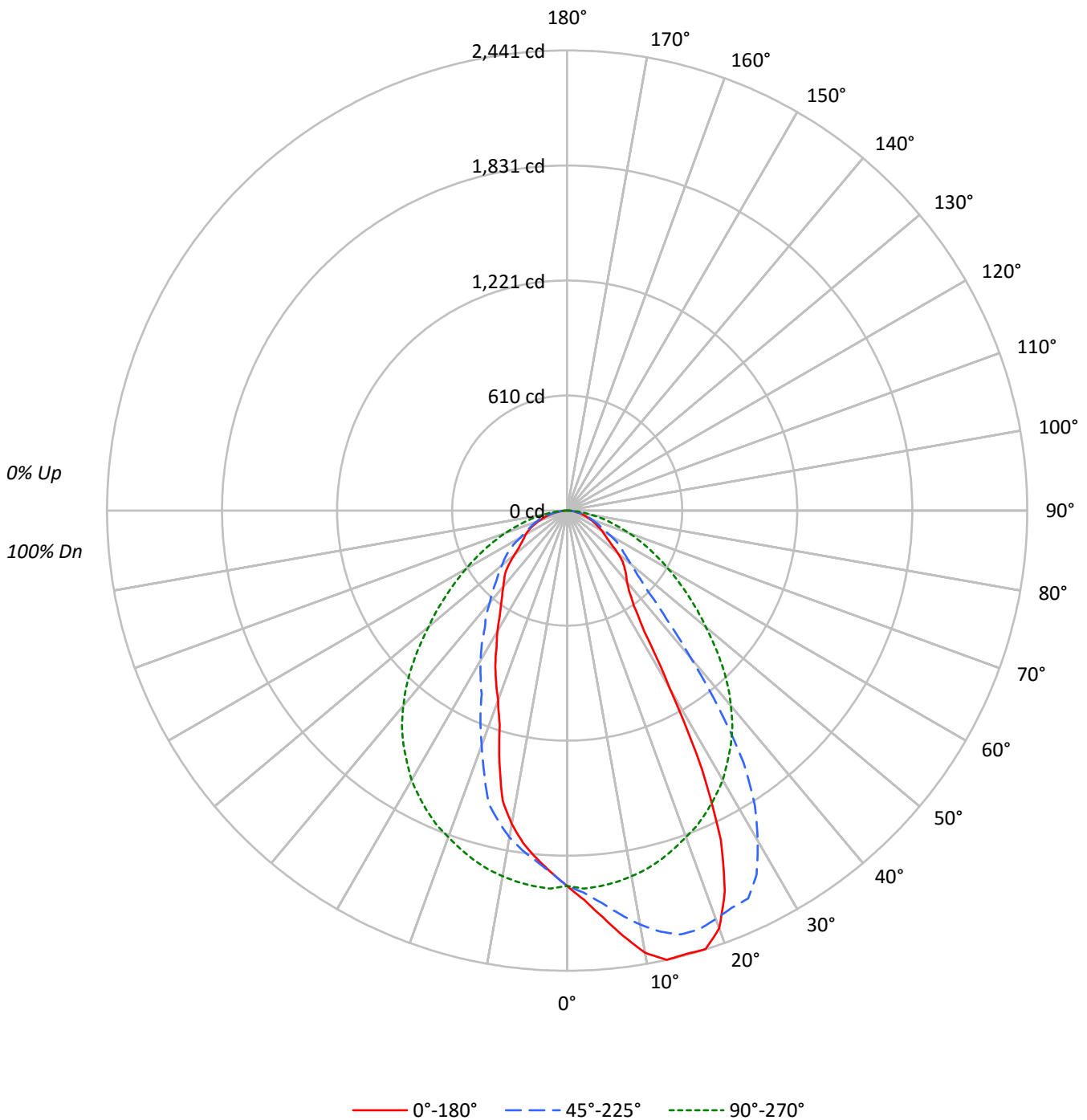
Input Watts (W): 41.1  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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°	58984	58984	58984
5°	64373	59498	55114
10°	71649	59265	50799
15°	74703	58816	42515
20°	74379	58122	33745
25°	63077	57474	29459
30°	37128	56486	25297
35°	22307	54763	22090
40°	19103	52278	20380
45°	18064	48733	19380
50°	16143	44261	16765
55°	13452	40402	15156
60°	12504	36812	15082
65°	11540	33527	14590
70°	10890	30217	13748
75°	10280	26731	12513
80°	9197	22353	10989
85°	8635	17542	8635



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	190.8	5.3
10°-20°	543.7	15.1
20°-30°	742.6	20.6
30°-40°	691.9	19.2
40°-50°	572.0	15.9
50°-60°	421.8	11.7
60°-70°	269.7	7.5
70°-80°	138.7	3.8
80°-90°	35.7	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°	1477.2	41.0
0°-40°	2169.0	60.1
0°-60°	3162.8	87.7
0°-90°	3606.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3606.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1991	1991	1991	1991	1991	
5°	2164	2088	2000	1867	1853	213
15°	2435	2328	1917	1608	1386	686
25°	1929	2271	1758	1073	901	838
35°	617	1632	1514	761	611	419
45°	431	608	1163	533	462	330
55°	260	349	782	381	293	240
65°	165	190	478	222	208	164
75°	90	98	234	123	109	94
85°	25	26	52	29	25	29
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°	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7
2.5°	2067.1	2065.6	2067.8	2066.3	2064.8	2061.1	2058.1	2049.1	2035.6	2028.1	2035.6
5°	2164.3	2170.3	2168.1	2165.1	2158.4	2152.4	2138.9	2130.7	2106.7	2088.0	2093.2
7.5°	2275.1	2282.6	2272.9	2266.1	2262.4	2245.2	2230.2	2207.0	2180.8	2159.9	2147.9
10°	2381.4	2383.6	2380.6	2374.6	2361.9	2343.2	2321.5	2295.3	2262.4	2230.2	2208.5
12.5°	2441.3	2445.0	2449.5	2439.0	2429.3	2414.3	2391.9	2365.7	2325.3	2287.8	2263.1
15°	2435.3	2438.3	2446.5	2442.7	2438.3	2431.5	2418.8	2397.1	2368.7	2327.5	2292.3
17.5°	2439.8	2442.0	2445.7	2432.3	2424.8	2416.6	2400.1	2385.1	2361.2	2329.0	2302.8
20°	2358.9	2395.6	2391.1	2409.1	2416.6	2415.8	2400.1	2371.7	2338.7	2305.8	2293.8
22.5°	2185.3	2214.5	2218.2	2245.9	2280.3	2308.0	2342.5	2355.2	2329.7	2280.3	2263.9
25°	1929.4	1950.3	1971.3	2010.9	2047.6	2124.7	2195.0	2248.2	2277.4	2270.6	2238.4
27.5°	1550.7	1528.2	1611.3	1656.9	1759.5	1871.7	1970.5	2067.8	2114.2	2176.3	2207.8
30°	1085.2	1082.9	1145.8	1225.1	1378.5	1481.8	1666.7	1823.1	1945.1	2021.4	2106.7
32.5°	761.9	773.1	819.5	868.1	952.7	1121.1	1262.5	1478.1	1686.1	1853.0	1957.8
35°	616.7	618.2	628.6	657.8	709.5	803.0	913.0	1122.6	1404.7	1631.5	1787.9
37.5°	540.3	544.8	547.8	564.3	583.0	622.7	692.3	837.4	1070.9	1323.9	1595.6
40°	493.9	497.7	500.7	505.9	517.1	535.8	581.5	651.1	785.8	1018.6	1320.9
42.5°	462.5	461.0	467.7	470.0	476.0	486.5	506.7	544.1	621.9	779.8	1040.3
45°	431.1	433.3	433.3	436.3	441.6	447.5	455.8	479.0	518.6	608.4	812.8
47.5°	398.1	397.4	401.9	404.1	409.4	414.6	420.6	432.6	455.8	508.2	626.4
50°	350.2	351.7	360.0	367.5	374.9	381.7	389.2	396.6	411.6	440.1	512.6
52.5°	299.4	299.4	308.3	313.6	324.1	340.5	353.2	364.5	374.2	388.4	431.8
55°	260.4	261.2	264.2	268.7	276.2	284.4	300.9	320.3	336.8	348.8	372.7
57.5°	233.5	234.2	235.0	238.7	242.5	245.5	255.2	270.2	291.9	313.6	327.8
60°	211.0	210.3	210.3	212.5	215.5	219.3	224.5	230.5	242.5	265.7	291.1
62.5°	185.6	187.1	187.1	189.3	191.6	195.3	197.6	203.6	210.3	220.8	247.0
65°	164.6	166.1	164.6	166.9	168.4	170.6	174.4	177.4	183.4	190.1	200.6
67.5°	143.7	144.4	145.9	146.7	148.2	148.9	151.9	155.7	159.4	163.9	172.1
70°	125.7	125.7	125.7	127.2	128.7	128.7	131.0	132.5	136.2	140.7	145.2
72.5°	106.3	107.0	107.0	106.3	109.3	110.0	110.8	112.3	115.3	119.0	122.7
75°	89.8	88.3	88.3	89.1	91.3	91.3	92.1	92.8	95.0	98.0	100.3
77.5°	70.3	70.3	71.1	71.8	72.6	72.6	74.1	74.1	77.1	78.6	80.1
80°	53.9	55.4	56.1	55.4	55.4	56.1	56.1	57.6	58.4	59.1	60.6
82.5°	40.4	41.2	39.7	39.7	40.4	40.4	41.2	41.2	41.9	42.7	42.7
85°	25.4	25.4	26.2	25.4	26.2	25.4	25.4	26.9	26.2	26.2	26.9
87.5°	12.0	12.7	12.0	12.7	12.0	12.7	12.7	12.7	12.7	12.7	12.0
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°	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7
2.5°	2033.4	2032.6	2028.9	2020.7	2014.7	2003.4	2003.4	2007.2	1987.7	1974.3	1973.5
5°	2080.5	2073.0	2060.3	2044.6	2030.4	2010.9	2003.4	2000.4	1974.3	1954.0	1947.3
7.5°	2130.7	2112.0	2090.3	2064.8	2040.9	2013.2	1999.0	1987.7	1954.0	1929.4	1914.4
10°	2183.1	2153.1	2119.4	2082.8	2049.8	2012.4	1989.2	1969.8	1930.8	1896.4	1879.2
12.5°	2229.5	2187.5	2144.9	2097.0	2052.1	2004.9	1972.8	1947.3	1901.7	1860.5	1839.5
15°	2251.2	2206.3	2171.1	2105.2	2044.6	1996.7	1955.5	1917.4	1868.7	1823.1	1790.9
17.5°	2269.9	2220.5	2174.1	2112.0	2041.6	1979.5	1930.1	1881.5	1829.1	1781.2	1741.5
20°	2264.6	2222.7	2165.8	2100.0	2033.4	1961.5	1905.4	1843.3	1778.2	1729.5	1687.6
22.5°	2234.7	2200.3	2141.1	2078.3	2013.9	1936.8	1873.2	1805.9	1725.8	1672.7	1625.5
25°	2196.5	2163.6	2105.2	2040.1	1976.5	1901.7	1826.8	1758.0	1671.9	1608.3	1547.7
27.5°	2166.6	2117.2	2058.8	1986.2	1924.9	1853.8	1775.2	1705.6	1612.8	1542.4	1472.1
30°	2132.2	2076.0	2004.2	1927.1	1862.0	1796.9	1720.6	1651.0	1548.4	1468.3	1380.8
32.5°	2033.4	2034.1	1948.8	1862.7	1793.1	1723.5	1655.4	1581.4	1479.6	1385.3	1295.5
35°	1904.7	1954.8	1891.9	1793.1	1707.1	1642.7	1586.6	1514.0	1401.0	1303.7	1201.9
37.5°	1732.5	1820.8	1828.3	1725.8	1630.7	1555.2	1499.8	1439.2	1325.4	1220.6	1119.6
40°	1560.4	1677.1	1723.5	1652.4	1549.2	1462.4	1407.0	1351.6	1244.6	1131.6	1038.0
42.5°	1349.3	1538.7	1596.3	1575.4	1464.6	1371.1	1312.7	1262.5	1158.5	1047.7	954.9
45°	1111.4	1367.3	1451.1	1472.8	1379.3	1279.0	1211.6	1163.0	1071.7	974.4	877.9
47.5°	892.8	1174.2	1312.7	1335.1	1285.7	1188.4	1111.4	1060.5	987.9	904.1	808.3
50°	681.0	969.2	1167.5	1201.9	1189.9	1091.2	1020.1	960.2	904.8	830.0	740.2
52.5°	541.8	774.6	1010.3	1074.7	1078.4	1000.6	925.8	871.1	817.2	758.1	676.5
55°	432.6	598.7	837.4	946.7	957.2	903.3	834.5	782.1	741.7	686.3	617.4
57.5°	364.5	463.3	670.6	818.0	822.5	807.5	741.7	698.2	664.6	616.7	556.1
60°	311.3	367.5	517.1	689.3	711.7	711.7	659.3	621.2	589.0	553.1	495.4
62.5°	269.4	300.1	392.2	547.8	605.4	614.4	581.5	547.8	523.9	488.0	434.8
65°	226.8	250.0	303.8	423.6	502.9	519.4	502.9	478.2	459.5	422.1	380.2
67.5°	186.3	208.8	242.5	321.1	407.9	428.1	425.1	412.4	392.9	365.2	321.1
70°	154.2	167.6	192.3	238.0	320.3	351.0	360.0	348.8	331.5	301.6	269.4
72.5°	127.2	137.7	149.7	182.6	239.5	279.9	294.9	288.9	276.2	247.7	220.8
75°	104.0	110.8	119.0	134.7	172.1	217.8	235.0	233.5	220.8	196.8	175.1
77.5°	83.8	86.1	92.1	101.8	120.5	161.7	175.1	179.6	169.9	149.7	132.5
80°	62.9	65.9	68.9	74.1	83.1	107.0	124.2	131.0	122.7	110.8	93.5
82.5°	44.2	44.9	47.9	50.9	55.4	65.1	83.1	90.6	83.1	70.3	65.1
85°	27.7	26.9	27.7	28.4	32.9	35.2	46.4	51.6	50.1	42.7	36.7
87.5°	12.7	12.7	12.0	12.7	12.0	14.2	16.5	23.9	18.0	15.7	14.2
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):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7	1990.7
2.5°	1967.5	1965.3	1957.8	1947.3	1938.3	1923.4	1923.4	1927.1	1926.4	1927.9	1926.4
5°	1936.1	1925.6	1914.4	1900.2	1886.7	1867.2	1865.0	1866.5	1865.7	1865.0	1860.5
7.5°	1895.7	1883.7	1869.5	1851.5	1836.6	1817.8	1812.6	1811.1	1805.1	1802.9	1796.9
10°	1856.8	1842.5	1823.8	1802.1	1781.9	1760.2	1746.7	1739.3	1729.5	1719.1	1710.1
12.5°	1813.4	1794.6	1770.7	1744.5	1710.8	1686.9	1666.7	1653.9	1640.5	1622.5	1609.8
15°	1767.0	1728.8	1700.3	1657.7	1616.5	1608.3	1577.6	1537.2	1534.2	1446.6	1416.0
17.5°	1704.8	1673.4	1620.3	1564.9	1508.8	1463.1	1463.9	1354.6	1320.9	1320.2	1266.3
20°	1640.5	1597.1	1535.7	1479.6	1420.4	1326.1	1251.3	1215.4	1160.8	1139.8	1109.1
22.5°	1564.9	1508.0	1436.2	1359.8	1277.5	1201.2	1127.8	1093.4	1065.7	1042.5	1029.8
25°	1475.1	1417.5	1331.4	1236.3	1144.3	1073.2	1032.8	1017.1	969.9	953.5	937.7
27.5°	1384.5	1321.7	1209.4	1118.1	1042.5	993.9	952.0	925.8	903.3	861.4	842.7
30°	1298.5	1197.4	1104.6	1020.8	963.9	918.3	887.6	834.5	803.0	783.6	775.3
32.5°	1204.9	1097.1	1013.3	940.7	882.4	842.7	797.0	761.1	746.9	721.4	684.8
35°	1109.1	1011.1	923.5	865.1	815.0	761.1	732.7	698.2	662.3	642.9	639.9
37.5°	1016.3	923.5	860.6	799.3	738.7	707.2	665.3	628.6	615.9	598.0	578.5
40°	932.5	853.2	794.8	724.4	687.8	639.1	606.9	588.2	557.6	550.8	544.8
42.5°	863.6	795.5	729.7	666.8	624.2	585.2	556.8	535.1	525.4	508.9	503.7
45°	794.0	731.2	663.8	614.4	565.8	532.9	513.4	494.7	483.5	479.0	470.0
47.5°	731.2	669.8	607.7	547.1	514.1	492.4	470.7	461.0	454.3	444.5	439.3
50°	671.3	603.2	544.8	506.7	471.5	452.0	437.8	428.8	418.4	407.9	392.9
52.5°	610.7	552.3	496.2	455.8	429.6	416.9	403.4	393.7	372.7	352.5	339.8
55°	549.3	489.4	443.8	413.1	394.4	380.9	365.2	336.8	317.3	306.1	300.1
57.5°	493.9	440.1	399.6	374.2	360.7	338.3	310.6	292.6	282.9	278.4	275.4
60°	434.8	388.4	354.7	335.3	314.3	284.4	269.4	260.4	257.4	255.9	253.7
62.5°	383.9	342.8	316.6	294.9	264.9	249.2	241.0	236.5	236.5	234.2	232.7
65°	330.0	297.9	275.4	244.0	228.3	221.5	218.5	216.3	214.0	213.3	210.3
67.5°	285.9	257.4	228.3	211.8	202.1	198.3	195.3	194.6	191.6	189.3	187.1
70°	241.0	213.3	189.3	181.9	176.6	175.1	172.1	169.1	166.9	163.9	162.4
72.5°	196.1	169.9	161.7	157.9	152.7	150.4	146.7	144.4	140.7	139.2	137.7
75°	149.7	139.2	134.7	131.7	128.0	122.7	121.2	119.0	117.5	115.3	113.0
77.5°	119.0	113.0	107.8	104.0	101.0	97.3	94.3	93.5	92.1	89.8	89.1
80°	89.1	84.6	82.3	78.6	74.8	72.6	71.1	70.3	68.1	67.4	66.6
82.5°	61.4	57.6	56.1	51.6	50.1	50.1	49.4	47.9	46.4	45.7	44.9
85°	34.4	32.9	30.7	31.4	29.2	29.2	28.4	27.7	26.9	26.2	25.4
87.5°	13.5	12.7	12.0	11.2	11.2	9.0	9.0	9.0	9.7	9.0	8.2
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: P242234

CATALOG NUMBER: S121RDR-S1025D840-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1990.7	1990.7	1990.7	1990.7
2.5°	1928.6	1930.1	1924.9	1921.9
5°	1860.5	1858.3	1855.3	1853.0
7.5°	1790.9	1788.7	1788.7	1779.7
10°	1706.3	1700.3	1695.9	1688.4
12.5°	1598.6	1589.6	1586.6	1577.6
15°	1395.0	1376.3	1363.6	1386.0
17.5°	1253.6	1204.9	1208.7	1189.9
20°	1108.4	1088.9	1098.6	1070.2
22.5°	1014.1	1002.1	990.9	984.9
25°	926.5	912.3	895.1	901.1
27.5°	816.5	816.5	805.3	809.8
30°	760.4	754.4	735.7	739.4
32.5°	672.8	665.3	663.1	664.6
35°	630.9	618.9	615.2	610.7
37.5°	572.5	568.0	568.8	565.8
40°	533.6	529.9	525.4	526.9
42.5°	499.9	497.7	493.2	493.9
45°	467.0	464.8	462.5	462.5
47.5°	430.3	425.8	422.1	417.6
50°	382.4	373.4	366.7	363.7
52.5°	330.8	326.3	321.8	321.8
55°	297.9	295.6	294.1	293.4
57.5°	274.7	273.2	273.2	270.9
60°	253.7	253.7	253.0	254.5
62.5°	233.5	231.3	232.0	232.0
65°	210.3	209.5	208.8	208.1
67.5°	185.6	184.9	185.6	184.1
70°	160.9	160.9	160.2	158.7
72.5°	135.5	137.0	135.5	134.7
75°	111.5	110.8	111.5	109.3
77.5°	89.1	86.1	87.6	88.3
80°	65.9	65.9	65.1	64.4
82.5°	44.2	44.9	43.4	43.4
85°	25.4	25.4	23.9	25.4
87.5°	7.5	7.5	7.5	9.0
90°	0.0	0.0	0.0	0.0

(END OF REPORT)