

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: P243163

Luminaire Tested: **S122DR-H1005D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243163  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-58)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S122DR-H1005D840-X4F0-XX-UDD-A-W  
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

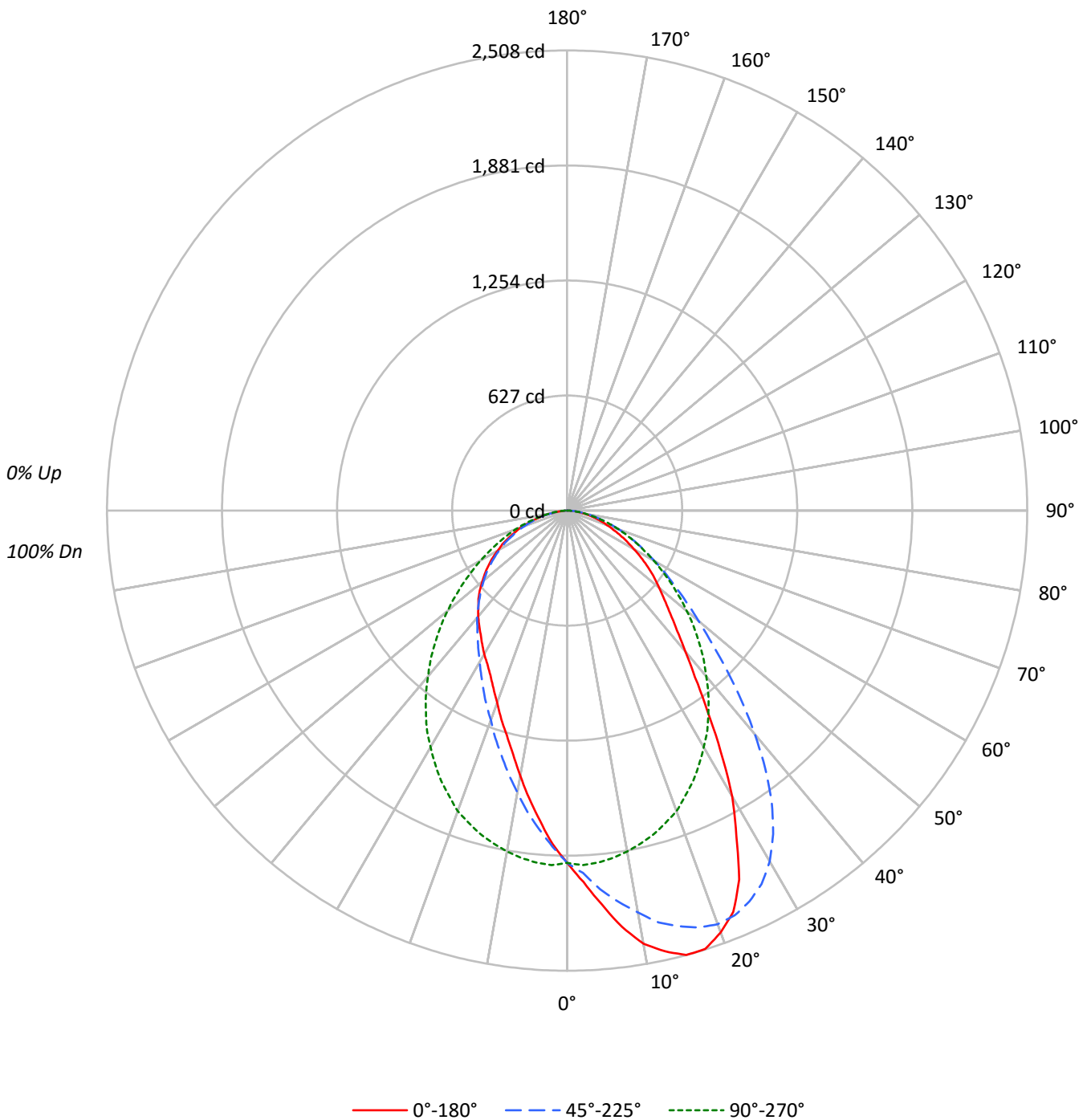
Lumens per Lamp: N/A  
Luminaire Lumens: 4259.0 lumens  
Efficiency: N/A  
Efficacy: 113.0 lumens/watt  
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.24  
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 37.7  
Input Voltage (V): 120  
Input Current (A<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	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			
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	82	75	69	79	73	68	76	71	67	73	69	66					63				
4	86	74	66	60	83	73	66	60	71	64	59	68	63	58	66	61	57					55				
5	79	67	59	52	77	66	58	52	64	57	52	62	56	51	60	55	51					49				
6	73	61	52	46	72	60	52	46	58	51	46	57	50	45	55	49	45					43				
7	68	56	47	41	67	55	47	41	53	46	41	52	46	41	51	45	40					39				
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37					35				
9	60	47	39	34	58	46	39	34	45	38	34	44	38	34	43	38	33					32				
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31					29				

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

	0°	90°	180°
0°	36558	36558	36558
5°	41182	36820	32434
10°	46356	36492	28386
15°	49447	36000	25018
20°	49589	35349	22577
25°	46638	34173	20811
30°	39590	32747	19874
35°	30954	31217	19128
40°	24870	29338	18758
45°	21394	27401	18406
50°	19407	25218	17892
55°	17880	22977	17408
60°	16072	20701	16613
65°	14472	18601	15815
70°	12898	16535	14797
75°	11606	14218	12967
80°	10125	11452	10125
85°	8698	8545	5595



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	182.9	4.3
10°-20°	525.6	12.3
20°-30°	764.3	17.9
30°-40°	819.9	19.3
40°-50°	734.8	17.3
50°-60°	585.8	13.8
60°-70°	396.3	9.3
70°-80°	202.1	4.7
80°-90°	47.4	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°	1472.8	34.6
0°-40°	2292.6	53.8
0°-60°	3613.3	84.8
0°-90°	4259.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4259.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1919	1919	1919	1919	1919	
5°	2154	2071	1926	1744	1696	213
15°	2508	2345	1826	1382	1269	702
25°	2219	2350	1626	1080	990	998
35°	1331	1945	1342	850	823	843
45°	794	1230	1017	675	683	621
55°	538	715	692	509	524	481
65°	321	416	413	335	351	319
75°	158	197	193	166	176	168
85°	40	46	39	30	26	46
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°	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3
2.5°	2025.9	2032.3	2026.6	2024.5	2020.2	2018.8	2007.4	1998.2	1992.5	1976.9	1978.3
5°	2153.8	2168.0	2160.1	2159.4	2143.8	2133.9	2123.9	2109.7	2088.4	2071.4	2057.9
7.5°	2288.7	2281.6	2279.5	2271.7	2260.3	2246.1	2224.1	2203.5	2176.5	2151.6	2133.2
10°	2396.7	2394.6	2398.1	2378.2	2371.1	2349.1	2329.9	2298.0	2263.1	2224.1	2199.9
12.5°	2460.6	2467.0	2472.0	2464.2	2447.1	2440.7	2408.8	2364.0	2351.9	2298.7	2269.5
15°	2507.5	2510.3	2511.1	2502.5	2494.0	2477.7	2458.5	2430.1	2391.0	2344.8	2322.8
17.5°	2504.7	2504.0	2508.2	2503.2	2498.3	2493.3	2478.4	2456.4	2425.8	2382.5	2345.5
20°	2446.4	2459.2	2469.1	2471.3	2470.6	2473.4	2466.3	2452.1	2430.1	2398.8	2356.9
22.5°	2366.9	2361.9	2383.2	2381.8	2391.0	2412.3	2421.6	2415.9	2407.3	2387.5	2354.1
25°	2219.1	2224.1	2239.0	2254.6	2290.9	2303.6	2331.3	2352.7	2355.5	2350.5	2329.9
27.5°	1997.5	2033.0	2040.8	2061.4	2111.8	2153.8	2209.9	2243.3	2290.9	2295.1	2285.9
30°	1800.0	1798.6	1810.7	1847.6	1893.8	1957.0	2029.4	2115.4	2170.1	2207.7	2221.2
32.5°	1557.1	1562.8	1594.0	1639.5	1686.4	1749.6	1833.4	1938.5	2011.7	2089.8	2133.9
35°	1331.2	1348.9	1378.8	1410.0	1461.2	1547.8	1640.9	1728.3	1840.5	1944.9	2016.0
37.5°	1145.1	1169.2	1192.0	1221.8	1271.5	1338.3	1422.1	1537.9	1649.4	1775.1	1879.6
40°	1000.2	1009.4	1025.0	1054.1	1087.5	1154.3	1238.8	1325.5	1446.3	1590.5	1727.6
42.5°	886.5	884.4	901.4	919.9	950.4	1000.2	1074.0	1160.7	1280.7	1408.6	1547.1
45°	794.2	794.9	802.0	821.2	845.3	873.7	930.5	1012.2	1103.2	1230.3	1377.4
47.5°	718.9	721.0	731.7	745.1	759.4	785.6	823.3	876.6	961.8	1068.4	1206.2
50°	654.9	658.5	665.6	675.5	686.2	704.7	733.1	775.0	842.5	932.7	1057.7
52.5°	598.1	599.5	601.7	610.9	619.4	636.5	657.8	690.5	743.7	819.0	916.3
55°	538.4	537.0	542.0	549.8	557.6	569.7	591.7	618.0	655.6	715.3	795.6
57.5°	477.3	479.5	483.0	487.3	501.5	514.3	530.6	554.8	584.6	631.5	698.3
60°	421.9	421.9	426.2	431.9	441.1	449.6	465.3	487.3	513.6	549.8	605.9
62.5°	368.0	370.8	375.1	377.9	386.4	397.1	409.2	426.2	450.4	479.5	521.4
65°	321.1	319.7	323.9	329.6	336.0	343.1	356.6	370.8	389.3	415.5	450.4
67.5°	272.8	277.0	278.5	281.3	286.3	295.5	301.9	316.8	331.7	355.2	384.3
70°	231.6	234.4	236.5	240.1	244.4	248.6	255.0	267.1	282.0	298.3	318.9
72.5°	194.6	196.8	194.6	198.2	200.3	204.6	213.1	218.8	230.2	244.4	262.8
75°	157.7	159.1	158.4	162.0	162.7	166.9	171.2	176.2	189.0	196.8	209.6
77.5°	123.6	125.0	125.7	127.2	128.6	130.7	132.8	137.8	144.9	152.0	162.0
80°	92.3	92.3	94.5	95.2	95.9	97.3	100.9	102.3	107.3	109.4	117.2
82.5°	63.9	64.6	65.4	65.4	66.1	67.5	68.2	71.0	72.5	76.0	79.6
85°	39.8	40.5	40.5	40.5	42.6	41.9	41.9	43.3	45.5	45.5	46.9
87.5°	19.9	20.6	20.6	20.6	21.3	21.3	21.3	21.3	21.3	22.7	22.0
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°	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3
2.5°	1977.6	1976.9	1974.0	1961.3	1951.3	1938.5	1936.4	1934.3	1916.5	1897.3	1891.6
5°	2047.2	2034.4	2016.7	1995.4	1974.0	1950.6	1937.1	1925.7	1898.7	1868.9	1851.9
7.5°	2115.4	2090.5	2062.8	2029.4	1993.9	1956.3	1932.1	1909.4	1872.5	1833.4	1810.0
10°	2173.6	2140.3	2101.9	2057.9	2008.8	1957.7	1922.2	1886.7	1839.8	1792.2	1760.9
12.5°	2221.9	2179.3	2128.9	2069.2	2024.5	1954.2	1904.4	1857.5	1805.7	1743.9	1709.8
15°	2258.9	2217.0	2148.8	2088.4	2029.4	1935.7	1875.3	1825.6	1756.0	1695.6	1641.6
17.5°	2303.6	2244.0	2176.5	2089.8	2024.5	1917.2	1849.0	1784.4	1709.1	1638.0	1578.4
20°	2323.5	2261.0	2188.6	2092.0	2008.8	1897.3	1806.4	1743.9	1653.0	1571.3	1503.8
22.5°	2326.4	2266.7	2187.9	2085.6	1981.9	1868.2	1763.8	1682.1	1591.2	1504.5	1428.5
25°	2314.3	2257.5	2175.8	2074.2	1952.0	1836.9	1720.4	1626.0	1520.8	1431.3	1353.9
27.5°	2281.6	2235.4	2158.0	2049.3	1921.5	1788.6	1661.5	1558.5	1454.8	1353.2	1279.3
30°	2229.1	2198.5	2131.7	2016.7	1882.4	1736.1	1608.9	1488.9	1376.6	1281.5	1201.9
32.5°	2161.6	2146.7	2091.2	1977.6	1842.6	1678.5	1545.7	1422.1	1299.9	1209.7	1128.0
35°	2075.6	2083.4	2036.6	1933.6	1792.2	1620.3	1471.8	1342.5	1223.2	1127.3	1052.0
37.5°	1964.1	2002.5	1972.6	1876.0	1727.6	1561.3	1394.4	1264.4	1139.4	1047.0	981.0
40°	1839.1	1906.6	1892.4	1811.4	1657.9	1492.4	1319.8	1179.9	1057.7	970.3	907.1
42.5°	1692.0	1790.1	1805.7	1732.5	1589.0	1406.5	1236.0	1101.0	983.1	897.2	836.8
45°	1527.2	1648.7	1701.3	1643.7	1508.8	1323.4	1150.0	1017.2	900.7	827.5	777.1
47.5°	1361.7	1508.1	1579.1	1551.4	1415.0	1234.6	1064.8	934.8	824.7	760.8	713.2
50°	1198.3	1355.3	1459.0	1440.6	1322.7	1150.0	978.9	851.0	750.1	691.2	650.7
52.5°	1054.9	1203.3	1316.3	1325.5	1219.7	1053.4	887.9	769.3	683.3	630.1	596.0
55°	913.5	1051.3	1174.9	1197.6	1111.7	951.9	804.1	691.9	613.7	569.7	542.0
57.5°	787.1	912.1	1035.0	1074.7	1005.1	860.9	713.9	615.2	547.7	513.6	489.4
60°	679.8	792.7	898.6	939.1	891.5	760.1	631.5	543.4	487.3	456.7	437.6
62.5°	586.0	673.4	767.2	811.9	780.0	665.6	553.4	475.2	429.8	403.5	388.6
65°	501.5	569.0	642.9	694.7	659.2	574.0	480.2	412.7	374.4	350.2	339.5
67.5°	423.4	479.5	538.4	579.6	561.9	484.5	405.6	353.0	321.1	302.6	292.7
70°	352.3	394.2	441.8	473.8	461.0	401.3	338.8	296.9	269.9	257.1	248.6
72.5°	289.1	316.1	352.3	378.6	365.1	323.2	278.5	245.1	225.2	210.3	203.9
75°	229.4	252.9	278.5	296.2	285.6	254.3	218.8	193.2	179.7	170.5	166.2
77.5°	174.0	192.5	210.3	218.8	213.8	191.1	166.9	147.0	135.7	130.0	125.0
80°	125.0	135.7	147.8	155.6	152.7	137.1	120.0	104.4	99.4	92.3	90.9
82.5°	83.8	92.3	95.2	98.7	96.6	89.5	77.4	68.2	63.9	60.4	59.7
85°	49.7	51.9	55.4	55.4	53.3	48.3	41.9	39.1	34.8	34.1	32.0
87.5°	22.0	22.0	22.0	22.0	22.0	20.6	17.8	16.3	14.9	14.2	13.5
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°	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3	1919.3
2.5°	1886.7	1879.6	1869.6	1858.3	1848.3	1832.7	1827.7	1827.7	1831.3	1827.0	1823.4
5°	1837.7	1823.4	1809.2	1787.2	1768.8	1743.9	1736.8	1729.7	1729.0	1721.9	1712.6
7.5°	1785.1	1763.8	1734.7	1703.4	1683.5	1656.5	1641.6	1637.3	1623.8	1611.1	1596.1
10°	1724.0	1691.3	1656.5	1626.7	1595.4	1560.6	1542.9	1530.8	1517.3	1501.7	1491.0
12.5°	1650.1	1613.2	1581.2	1546.4	1520.1	1471.1	1465.4	1449.8	1422.8	1399.4	1390.8
15°	1604.7	1540.0	1503.8	1471.8	1432.0	1381.6	1363.1	1346.1	1320.5	1305.6	1293.5
17.5°	1524.4	1466.1	1420.7	1378.1	1339.7	1300.6	1272.9	1258.7	1238.1	1225.3	1213.3
20°	1451.2	1388.0	1340.4	1290.7	1250.9	1215.4	1192.0	1174.2	1163.5	1150.8	1138.7
22.5°	1377.4	1311.3	1265.8	1215.4	1168.5	1147.2	1119.5	1104.6	1090.4	1080.4	1067.6
25°	1291.4	1238.8	1182.0	1142.9	1101.7	1079.7	1053.4	1039.2	1027.9	1016.5	1010.1
27.5°	1214.7	1161.4	1108.8	1069.8	1035.0	1013.7	997.3	983.8	969.6	961.1	956.1
30°	1135.1	1086.1	1039.9	1002.3	975.3	951.9	941.9	929.1	918.5	914.9	907.1
32.5°	1064.1	1009.4	972.5	938.4	915.6	899.3	892.2	878.7	876.6	873.0	868.7
35°	993.1	946.2	910.7	881.5	862.4	850.3	841.0	837.5	833.9	830.4	826.8
37.5°	922.7	885.8	852.4	829.0	813.3	804.1	802.0	794.9	794.2	789.2	789.2
40°	859.5	821.9	798.4	780.0	767.2	762.9	757.2	755.8	753.7	752.3	755.1
42.5°	796.3	770.7	750.8	731.7	721.7	718.2	716.7	714.6	713.2	717.4	718.9
45°	737.3	715.3	698.3	684.8	679.1	674.8	674.8	677.0	676.2	678.4	678.4
47.5°	682.6	662.7	648.5	643.6	636.5	635.0	635.8	635.0	638.6	641.4	644.3
50°	630.8	613.0	601.7	596.7	595.3	593.1	596.0	597.4	599.5	602.4	603.8
52.5°	573.2	564.7	557.6	552.6	551.9	552.6	551.9	556.9	559.0	563.3	562.6
55°	524.2	517.8	512.9	507.2	506.5	508.6	510.0	514.3	517.1	520.7	520.0
57.5°	478.1	473.1	467.4	466.0	465.3	466.0	472.4	471.7	475.9	478.8	480.2
60°	427.6	424.1	419.1	419.1	421.2	422.7	424.8	428.3	432.6	431.9	436.9
62.5°	381.5	377.2	375.8	377.9	377.2	380.7	382.9	382.9	388.6	390.7	392.1
65°	335.3	333.9	331.7	331.7	333.9	334.6	338.1	340.3	342.4	346.6	350.2
67.5°	292.0	288.4	288.4	287.0	289.8	292.0	294.1	296.9	298.3	303.3	305.4
70°	246.5	245.1	244.4	245.8	245.8	247.9	251.5	255.0	257.9	258.6	262.8
72.5°	202.4	202.4	202.4	204.6	206.0	208.1	208.8	211.7	215.9	216.7	218.8
75°	162.7	163.4	162.7	163.4	164.1	166.2	167.6	170.5	173.3	174.0	175.5
77.5°	125.7	124.3	122.9	125.0	126.4	130.7	130.0	131.4	134.3	132.8	134.3
80°	88.1	90.2	87.4	91.6	91.6	90.9	92.3	94.5	93.8	95.2	93.8
82.5°	59.7	57.5	57.5	59.7	60.4	58.2	59.7	60.4	61.1	59.7	59.0
85°	32.7	32.0	33.4	31.3	32.0	30.5	30.5	29.1	30.5	29.1	27.7
87.5°	12.1	11.4	12.1	9.9	9.2	8.5	7.8	7.8	6.4	6.4	6.4
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: P243163

CATALOG NUMBER: S122DR-H1005D840-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1919.3	1919.3	1919.3	1919.3
2.5°	1828.4	1820.6	1817.1	1819.9
5°	1702.7	1704.8	1692.0	1696.3
7.5°	1594.0	1584.8	1587.6	1582.6
10°	1478.9	1474.0	1466.1	1467.6
12.5°	1401.5	1368.1	1366.0	1359.6
15°	1292.8	1274.4	1270.1	1268.7
17.5°	1206.2	1190.5	1196.2	1192.0
20°	1128.0	1128.7	1119.5	1113.8
22.5°	1059.1	1057.7	1054.1	1048.5
25°	1000.9	1000.9	992.3	990.2
27.5°	947.6	949.0	941.9	941.9
30°	907.8	902.8	902.1	903.6
32.5°	868.0	862.4	863.1	862.4
35°	825.4	826.8	824.7	822.6
37.5°	789.2	789.2	789.2	787.1
40°	753.7	755.1	753.0	754.4
42.5°	718.2	718.9	718.9	716.0
45°	682.6	681.9	680.5	683.3
47.5°	645.7	645.7	645.0	646.4
50°	605.2	606.6	604.5	603.8
52.5°	564.0	564.7	564.0	565.4
55°	522.1	522.1	522.8	524.2
57.5°	478.8	483.7	480.2	483.0
60°	436.1	436.9	437.6	436.1
62.5°	395.7	395.0	395.7	397.8
65°	351.6	353.0	352.3	350.9
67.5°	308.3	306.9	309.0	306.9
70°	262.1	265.0	262.8	265.7
72.5°	220.2	219.5	220.9	217.4
75°	176.2	176.2	176.9	176.2
77.5°	135.0	133.5	132.8	130.7
80°	93.1	93.1	90.2	92.3
82.5°	56.8	57.5	58.2	54.0
85°	27.0	27.0	26.3	25.6
87.5°	5.7	5.7	6.4	7.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)