

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: P243428

Luminaire Tested: **S123RDR-H1165D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243428
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-69)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123RDR-H1165D830-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4000.2 lumens
Efficiency: N/A
Efficacy: 106.1 lumens/watt
Spacing Criteria (0/90/45): 1.28 / 1.22 / 1.4
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

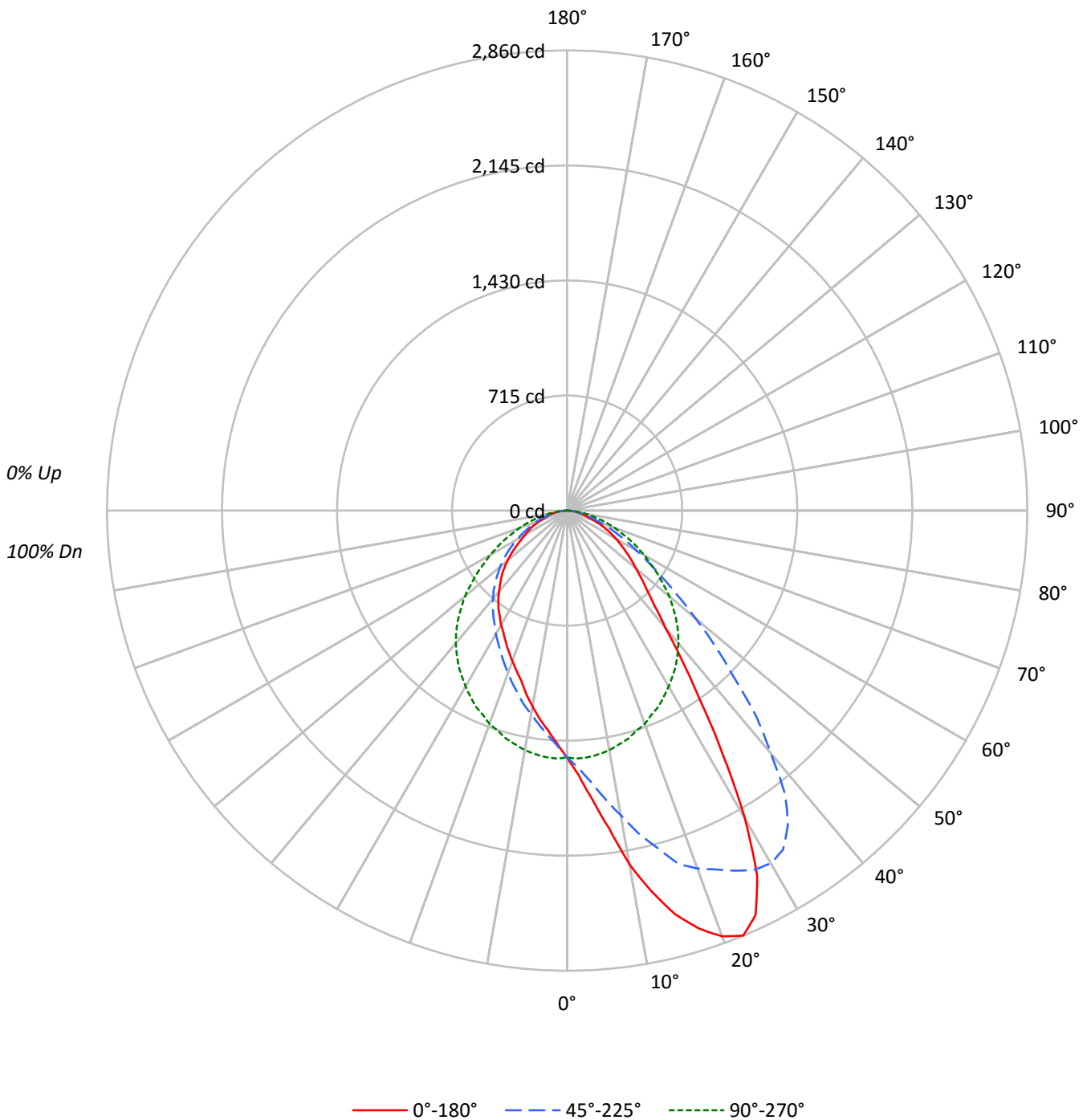
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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			
1	110	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	89					87				
2	101	94	88	83	99	92	86	82	89	84	80	85	81	78	82	79	76					74				
3	93	84	76	70	91	82	75	70	79	73	68	76	71	67	74	70	66					64				
4	86	75	67	61	84	74	66	60	71	65	59	69	63	59	67	62	58					56				
5	79	68	59	53	77	66	59	53	64	57	52	62	56	52	61	55	51					49				
6	74	61	53	47	72	60	52	47	59	52	46	57	51	46	55	50	46					44				
7	69	56	48	42	67	55	47	42	54	47	41	52	46	41	51	45	41					39				
8	64	51	43	38	62	51	43	37	49	42	37	48	42	37	47	41	37					35				
9	60	47	39	34	59	47	39	34	45	39	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°	18609	18609	18609
5°	21938	18712	16663
10°	27462	18603	15208
15°	32591	18417	13775
20°	36323	18196	12826
25°	37075	17970	12074
30°	30896	17665	11485
35°	21344	17421	11005
40°	14999	17023	10426
45°	12044	16420	9864
50°	10500	15638	9125
55°	9415	14470	8126
60°	8516	13370	7360
65°	7451	12319	6884
70°	6014	11089	5826
75°	5217	9657	5714
80°	4809	8237	5738
85°	4242	6634	4979



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	150.6	3.8
10°-20°	474.1	11.9
20°-30°	759.7	19.0
30°-40°	824.7	20.6
40°-50°	706.6	17.7
50°-60°	535.6	13.4
60°-70°	342.3	8.6
70°-80°	163.7	4.1
80°-90°	43.0	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°	1384.4	34.6
0°-40°	2209.1	55.2
0°-60°	3451.3	86.3
0°-90°	4000.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4000.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1535	1535	1535	1535	1535	
5°	1803	1692	1538	1398	1370	185
15°	2597	2171	1468	1179	1098	736
25°	2772	2469	1344	976	903	1230
35°	1442	2391	1177	799	744	926
45°	703	1464	958	632	575	555
55°	446	717	685	453	384	402
65°	260	345	430	274	240	258
75°	111	135	206	130	122	120
85°	30	32	48	38	36	35
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°	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2
2.5°	1645.3	1647.2	1643.9	1643.3	1642.6	1632.0	1628.7	1623.4	1604.8	1600.2	1596.9
5°	1803.0	1797.7	1803.7	1792.4	1779.8	1772.5	1760.6	1734.1	1710.9	1692.3	1680.4
7.5°	1989.9	1991.9	1986.0	1975.4	1950.2	1939.6	1907.1	1875.3	1844.8	1806.3	1777.8
10°	2231.2	2215.3	2218.6	2185.5	2159.0	2127.2	2082.7	2031.7	1978.0	1923.7	1883.2
12.5°	2423.5	2434.7	2426.8	2410.9	2359.8	2328.7	2288.2	2214.0	2129.2	2056.2	1994.6
15°	2597.1	2581.9	2583.9	2545.4	2526.9	2498.4	2431.4	2357.8	2302.8	2170.9	2098.0
17.5°	2724.4	2723.1	2721.1	2688.6	2666.1	2606.4	2538.1	2462.6	2393.6	2302.2	2210.7
20°	2815.9	2825.8	2823.2	2796.7	2756.9	2699.2	2658.1	2564.0	2450.6	2367.1	2255.1
22.5°	2859.6	2860.3	2861.6	2849.0	2822.5	2785.4	2727.1	2651.5	2550.7	2414.2	2289.6
25°	2772.1	2775.5	2792.7	2803.3	2810.6	2794.0	2763.5	2695.2	2608.4	2469.2	2339.9
27.5°	2557.4	2568.0	2587.2	2650.8	2676.7	2712.5	2725.1	2697.9	2633.6	2517.6	2370.4
30°	2207.4	2237.2	2255.8	2328.0	2429.4	2524.9	2570.0	2614.4	2608.4	2531.5	2382.4
32.5°	1807.0	1826.2	1879.9	1957.5	2037.7	2177.5	2334.0	2441.4	2501.7	2497.7	2392.3
35°	1442.4	1470.3	1516.0	1575.0	1685.7	1830.9	2007.8	2176.9	2328.0	2391.0	2353.2
37.5°	1170.6	1173.3	1216.4	1299.9	1368.8	1496.8	1656.5	1865.3	2063.5	2227.9	2264.4
40°	947.9	966.5	989.0	1041.4	1122.9	1245.5	1351.6	1557.1	1762.6	1968.7	2115.9
42.5°	807.4	807.4	832.6	865.7	920.1	993.6	1120.3	1306.5	1491.5	1744.7	1910.4
45°	702.6	709.3	720.5	741.8	780.2	837.2	935.3	1061.9	1250.8	1463.6	1712.9
47.5°	627.1	626.4	636.4	649.0	678.8	721.9	779.5	882.3	1022.2	1251.5	1471.6
50°	556.8	559.5	566.8	577.4	597.2	627.7	664.2	741.8	859.7	1041.4	1272.1
52.5°	502.5	501.8	507.8	514.4	529.6	546.9	579.4	637.0	718.6	863.1	1054.6
55°	445.5	448.1	455.4	459.4	472.0	483.2	510.4	542.9	608.5	717.2	891.6
57.5°	396.4	399.7	403.7	407.7	416.3	427.6	450.1	470.0	517.7	595.9	735.1
60°	351.3	350.0	354.6	361.3	365.9	375.8	388.4	409.0	442.1	497.8	599.9
62.5°	306.2	306.9	307.6	311.6	320.2	328.8	340.1	355.3	375.2	416.3	488.5
65°	259.8	260.5	261.8	265.8	274.4	279.7	291.7	304.9	320.8	345.4	395.7
67.5°	218.7	221.4	221.4	224.7	228.0	233.3	241.9	251.9	265.1	283.0	315.5
70°	169.7	169.0	172.3	179.0	182.3	191.6	197.5	204.2	216.1	227.4	255.2
72.5°	136.6	136.6	136.6	139.2	139.9	141.9	145.8	159.8	169.0	180.3	195.5
75°	111.4	112.0	112.0	112.7	113.4	115.3	116.7	120.6	123.3	135.2	144.5
77.5°	88.8	89.5	89.5	90.2	90.8	91.5	94.1	94.1	96.1	98.8	102.7
80°	68.9	68.3	68.3	68.9	68.9	70.9	70.9	72.3	72.9	74.2	76.2
82.5°	49.1	48.4	49.1	48.4	49.1	49.7	51.0	50.4	51.7	53.0	53.7
85°	30.5	31.2	31.2	32.5	31.8	31.2	31.8	31.8	31.8	31.8	33.1
87.5°	13.3	14.6	14.6	13.9	14.6	14.6	13.3	14.6	14.6	14.6	15.2
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2
2.5°	1594.9	1592.2	1582.3	1573.0	1559.1	1553.1	1545.2	1541.8	1531.2	1516.7	1510.0
5°	1669.1	1649.2	1630.0	1606.8	1587.6	1565.0	1552.5	1537.9	1515.3	1494.8	1480.2
7.5°	1748.0	1718.8	1683.0	1644.6	1610.1	1577.6	1549.8	1526.6	1497.4	1468.9	1446.4
10°	1834.8	1785.1	1727.4	1678.4	1628.7	1581.6	1546.5	1511.4	1473.6	1437.8	1410.6
12.5°	1928.3	1858.0	1788.4	1714.9	1640.6	1586.3	1533.9	1488.8	1446.4	1408.6	1376.1
15°	2025.1	1929.0	1840.1	1757.3	1653.9	1581.0	1523.3	1467.6	1414.6	1368.2	1336.4
17.5°	2094.0	1984.0	1872.0	1754.6	1665.8	1575.7	1504.1	1433.8	1384.7	1337.0	1293.9
20°	2157.7	2033.0	1899.8	1790.4	1666.5	1556.4	1478.2	1410.6	1342.3	1291.3	1254.8
22.5°	2184.8	2072.1	1937.6	1785.8	1661.8	1549.1	1448.4	1372.1	1311.2	1255.5	1207.8
25°	2190.1	2064.2	1926.3	1779.8	1643.9	1522.0	1419.9	1343.6	1264.1	1206.4	1169.3
27.5°	2213.3	2041.0	1905.8	1759.9	1622.1	1494.8	1387.4	1302.5	1228.3	1166.7	1118.9
30°	2219.3	2031.0	1862.0	1722.8	1581.0	1456.3	1347.6	1262.1	1181.2	1118.3	1075.2
32.5°	2222.0	2017.8	1816.3	1663.8	1528.6	1411.3	1311.8	1219.0	1142.1	1075.8	1031.4
35°	2212.7	1999.2	1761.3	1596.9	1466.9	1351.6	1259.5	1177.3	1091.8	1029.4	982.4
37.5°	2176.2	1970.1	1730.1	1518.6	1394.7	1286.0	1207.8	1126.9	1048.0	980.4	932.0
40°	2107.3	1927.6	1671.8	1453.0	1312.5	1215.0	1142.1	1075.8	996.3	931.3	883.6
42.5°	1997.2	1870.0	1618.1	1378.8	1231.0	1138.8	1077.8	1020.8	949.2	887.6	835.2
45°	1834.2	1789.1	1546.5	1303.2	1142.1	1055.3	1002.3	957.9	892.9	836.5	788.2
47.5°	1657.8	1667.8	1474.2	1226.3	1061.3	978.4	932.0	892.9	843.8	783.5	739.1
50°	1454.3	1508.7	1372.8	1148.8	980.4	898.9	853.1	829.3	783.5	733.1	691.4
52.5°	1268.1	1354.3	1270.1	1063.9	900.8	820.6	778.2	754.4	723.9	682.1	639.7
55°	1075.2	1184.6	1123.6	972.4	820.0	739.1	703.3	684.7	659.6	627.1	588.6
57.5°	915.4	1032.1	993.6	876.3	741.1	668.2	636.4	615.1	599.9	570.1	538.9
60°	759.0	867.0	851.8	765.6	662.9	593.3	568.7	551.5	538.9	517.0	486.5
62.5°	612.5	717.2	726.5	658.9	586.6	523.7	501.1	489.2	479.3	462.0	434.2
65°	485.9	578.0	597.2	545.5	506.4	458.7	436.8	429.5	422.3	402.4	381.2
67.5°	380.5	452.7	477.9	448.8	420.9	393.1	375.8	365.9	360.6	348.7	334.1
70°	291.0	353.3	374.5	361.9	343.4	332.8	319.5	312.9	307.6	292.3	284.4
72.5°	218.1	260.5	287.0	283.0	279.1	271.8	263.8	261.8	253.9	243.9	236.6
75°	159.8	184.3	208.1	216.8	215.4	218.1	209.5	206.2	201.5	194.2	188.3
77.5°	114.7	129.3	145.8	156.4	161.7	162.4	162.4	160.4	157.1	151.8	147.2
80°	79.5	82.9	98.1	108.0	113.4	117.3	117.3	118.0	114.7	112.7	109.4
82.5°	55.0	57.0	60.3	68.3	74.9	79.5	80.2	79.5	78.2	77.6	72.9
85°	34.5	33.8	33.8	35.8	41.1	45.7	46.4	47.7	47.1	46.4	41.8
87.5°	14.6	14.6	15.2	14.6	16.6	17.2	18.6	21.9	21.2	17.9	16.6
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°	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2	1535.2
2.5°	1506.0	1497.4	1489.5	1480.9	1470.3	1460.3	1459.0	1457.7	1461.0	1454.3	1451.7
5°	1468.9	1452.4	1439.8	1423.9	1412.6	1398.0	1390.0	1388.1	1387.4	1383.4	1378.1
7.5°	1428.5	1410.6	1392.7	1374.8	1356.2	1341.0	1332.4	1327.7	1323.8	1317.1	1311.8
10°	1390.7	1368.2	1348.9	1324.4	1304.5	1284.6	1276.7	1270.1	1266.1	1256.8	1249.5
12.5°	1348.3	1319.8	1298.6	1272.1	1254.2	1236.9	1224.3	1211.7	1202.5	1188.5	1182.6
15°	1311.2	1281.3	1245.5	1229.6	1204.4	1178.6	1164.7	1164.7	1145.4	1134.2	1126.9
17.5°	1261.4	1235.6	1210.4	1177.9	1142.1	1126.9	1111.0	1097.1	1083.8	1080.5	1067.2
20°	1217.7	1187.2	1161.4	1126.2	1093.7	1075.8	1057.3	1042.0	1032.1	1022.8	1015.5
22.5°	1174.6	1144.1	1104.3	1069.9	1048.0	1024.1	1004.3	991.0	982.4	968.5	961.8
25°	1129.5	1093.1	1057.3	1023.5	996.3	975.8	955.2	947.9	932.7	925.4	916.1
27.5°	1084.5	1040.7	1006.9	977.7	947.2	927.4	913.4	900.2	886.9	882.9	877.6
30°	1034.1	993.6	961.2	932.7	903.5	886.3	869.7	857.8	846.5	837.9	831.9
32.5°	983.7	949.9	918.7	885.6	859.1	840.5	826.6	816.0	810.7	796.1	790.8
35°	937.3	902.8	869.7	838.5	817.3	799.4	786.8	776.9	765.6	756.3	751.0
37.5°	889.6	858.4	824.6	798.1	774.2	759.7	745.7	732.5	723.9	718.6	711.9
40°	843.2	810.0	784.2	755.0	733.8	717.2	702.6	692.7	682.1	677.5	668.8
42.5°	799.4	767.6	737.8	711.3	692.0	676.1	662.2	650.9	642.3	633.7	629.1
45°	749.0	721.2	694.0	667.5	649.6	632.4	617.1	607.2	595.3	588.0	585.3
47.5°	706.6	677.5	648.3	623.8	605.2	586.6	574.0	562.1	552.2	544.9	540.9
50°	656.2	629.1	605.2	580.7	562.8	542.9	527.6	516.4	505.1	499.8	493.2
52.5°	613.2	586.6	557.5	535.6	515.1	497.8	483.9	474.6	464.7	456.7	452.1
55°	559.5	533.6	510.4	487.2	466.7	452.7	441.5	425.6	416.9	409.0	396.4
57.5°	512.4	487.9	463.3	440.8	421.6	405.0	391.1	380.5	369.2	363.3	354.6
60°	462.7	436.8	414.3	397.1	375.8	358.0	348.7	336.1	326.8	317.5	314.9
62.5°	413.6	389.8	367.2	349.3	330.1	316.2	304.3	298.3	289.0	281.7	279.1
65°	362.6	342.7	321.5	301.6	289.7	273.8	267.1	257.2	251.9	248.6	247.9
67.5°	312.2	294.3	275.1	259.8	248.6	238.0	230.0	226.0	220.7	216.8	213.4
70°	266.5	249.2	232.7	220.1	211.5	203.5	198.2	190.9	185.6	180.3	173.0
72.5°	221.4	207.5	193.6	183.6	175.0	170.4	163.1	151.8	146.5	145.2	144.5
75°	179.6	164.4	154.4	149.1	141.2	129.9	125.3	124.0	123.3	122.0	122.0
77.5°	138.5	129.3	122.6	111.4	107.4	106.7	103.4	102.7	101.4	102.1	102.1
80°	100.8	95.5	87.5	84.2	82.9	83.5	82.2	82.9	81.5	82.2	80.9
82.5°	67.0	62.3	63.6	61.6	61.6	63.0	62.3	60.3	60.3	59.7	59.7
85°	39.8	39.1	40.4	40.4	39.8	37.8	39.1	38.4	36.5	37.1	37.1
87.5°	17.2	17.2	17.2	16.6	17.2	16.6	16.6	16.6	14.6	14.6	14.6
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: P243428

CATALOG NUMBER: S123RDR-H1165D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1535.2	1535.2	1535.2	1535.2
2.5°	1453.0	1451.7	1449.7	1447.7
5°	1378.1	1372.1	1371.5	1369.5
7.5°	1307.9	1305.2	1300.6	1305.9
10°	1243.6	1245.5	1240.9	1235.6
12.5°	1176.6	1172.6	1165.3	1169.3
15°	1117.6	1111.0	1107.0	1097.7
17.5°	1056.0	1050.7	1050.7	1044.7
20°	1002.3	997.0	998.3	994.3
22.5°	957.2	953.2	947.2	947.9
25°	914.8	908.8	902.2	902.8
27.5°	867.7	862.4	861.1	856.4
30°	825.9	821.3	820.6	820.6
32.5°	785.5	783.5	780.2	778.2
35°	750.4	747.7	742.4	743.7
37.5°	706.6	704.0	703.3	702.6
40°	665.5	663.5	658.2	658.9
42.5°	624.4	621.1	617.8	616.5
45°	580.0	579.4	574.0	575.4
47.5°	537.6	536.3	533.6	530.3
50°	490.5	489.9	487.9	483.9
52.5°	444.8	442.8	438.8	434.8
55°	393.1	387.1	387.8	384.5
57.5°	350.7	348.0	342.7	340.7
60°	309.6	306.9	306.2	303.6
62.5°	275.1	272.4	270.5	270.5
65°	243.9	240.6	240.0	240.0
67.5°	209.5	206.2	205.5	204.2
70°	166.4	165.7	164.4	164.4
72.5°	143.2	142.5	143.2	140.5
75°	122.0	121.3	121.3	122.0
77.5°	101.4	101.4	100.8	100.8
80°	80.2	80.9	80.2	82.2
82.5°	60.3	59.0	59.7	58.3
85°	37.1	37.1	35.8	35.8
87.5°	14.6	14.6	14.6	14.6
90°	0.0	0.0	0.0	0.0

(END OF REPORT)