

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: P242583

Luminaire Tested: **S123RDR-S1165D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242583
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-30)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123RDR-S1165D930-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3514.3 lumens
Efficiency: N/A
Efficacy: 85.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.22 / 1.35
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

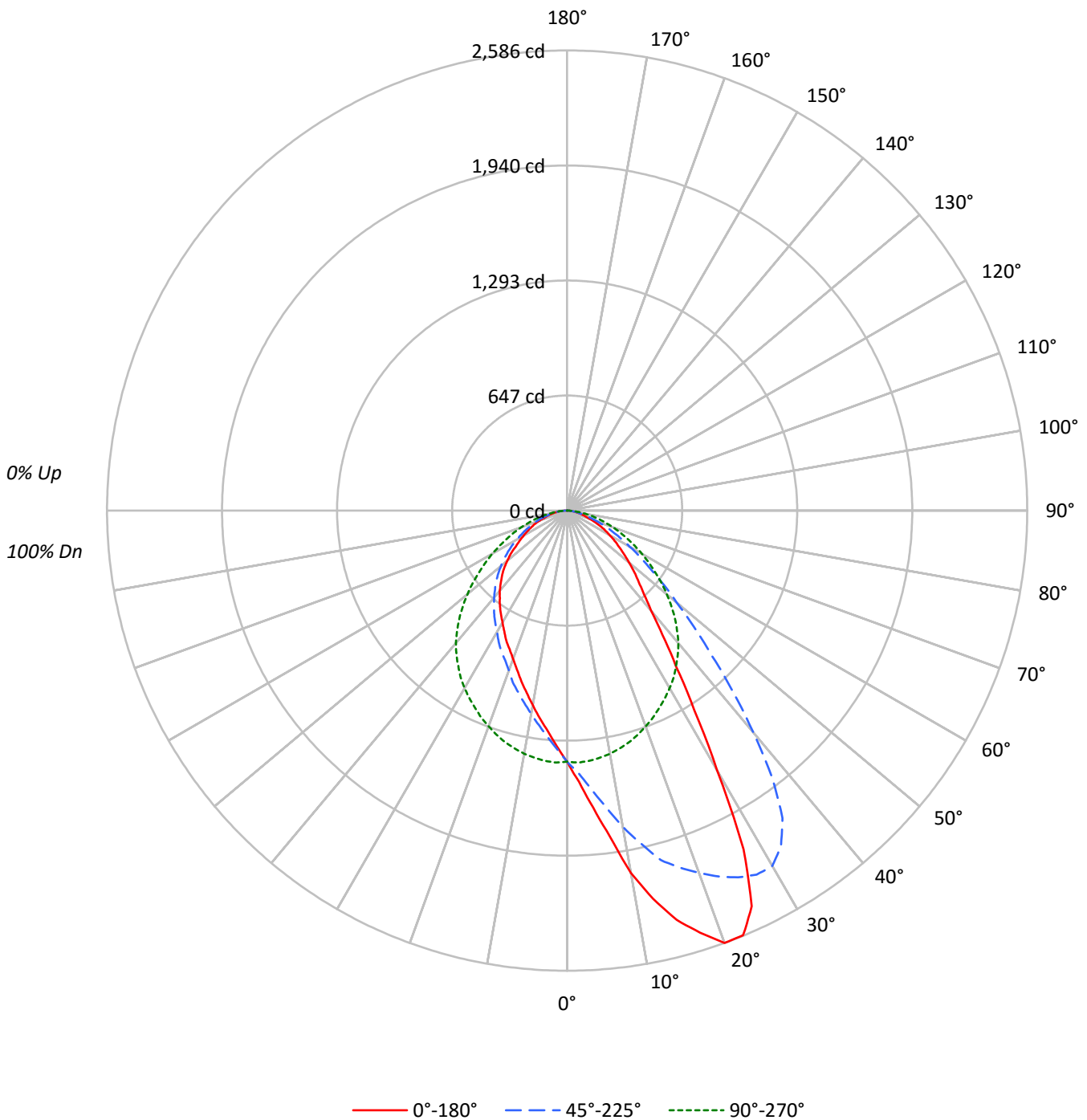
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	110	106	102	99	108	104	100	97	100	97	94	96	93	91	92	90	89	87
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	74
3	93	84	76	71	91	82	75	70	79	74	69	77	72	68	74	70	66	64
4	86	75	67	61	84	74	66	61	71	65	60	69	64	59	67	62	58	56
5	80	68	60	53	78	67	59	53	65	58	53	63	57	52	61	56	52	50
6	74	62	53	47	72	61	53	47	59	52	47	57	51	46	56	50	46	44
7	69	56	48	42	67	55	48	42	54	47	42	53	46	42	51	46	41	39
8	64	52	44	38	63	51	43	38	50	43	38	48	42	38	47	42	37	36
9	60	48	40	35	59	47	40	35	46	39	34	45	39	34	44	38	34	32
10	57	44	37	32	55	44	36	32	43	36	31	42	36	31	41	35	31	29

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	17108	17108	17108
5°	20393	17181	15129
10°	25462	17081	13668
15°	29888	16907	12465
20°	33356	16646	11440
25°	32823	16371	10812
30°	23594	16118	10164
35°	15753	15789	9745
40°	11606	15391	9312
45°	9735	14696	8886
50°	8591	13787	8293
55°	7534	12743	7481
60°	6708	11748	6856
65°	5891	10675	6376
70°	4625	9721	5823
75°	4074	8491	5320
80°	3546	7211	5228
85°	2851	5799	5549



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.6	3.9
10°-20°	433.9	12.3
20°-30°	683.4	19.4
30°-40°	710.6	20.2
40°-50°	608.0	17.3
50°-60°	463.4	13.2
60°-70°	296.9	8.4
70°-80°	142.2	4.0
80°-90°	37.4	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°	1255.8	35.7
0°-40°	1966.5	56.0
0°-60°	3037.8	86.4
0°-90°	3514.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3514.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1411	1411	1411	1411	1411	
5°	1676	1572	1412	1275	1243	172
15°	2382	2034	1347	1059	993	676
25°	2454	2274	1224	875	808	1066
35°	1065	2110	1067	714	659	692
45°	568	1146	857	564	518	445
55°	356	572	603	407	354	322
65°	205	282	372	254	222	202
75°	87	102	181	129	114	93
85°	20	22	42	39	40	24
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°	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4
2.5°	1526.2	1528.6	1520.7	1519.5	1510.5	1508.0	1508.0	1495.3	1487.5	1477.2	1471.2
5°	1676.0	1685.7	1680.8	1670.0	1651.8	1647.6	1636.1	1618.0	1597.5	1572.1	1560.0
7.5°	1847.6	1867.5	1863.9	1847.0	1827.6	1815.6	1783.5	1757.6	1718.3	1682.6	1654.9
10°	2068.7	2054.8	2043.9	2027.6	2010.1	1981.7	1947.9	1901.4	1847.6	1805.3	1758.2
12.5°	2234.3	2234.9	2220.4	2203.4	2176.9	2150.3	2106.8	2047.6	1982.9	1917.1	1861.5
15°	2381.7	2385.3	2376.2	2358.7	2323.7	2275.9	2213.1	2189.6	2100.1	2033.7	1967.2
17.5°	2486.8	2487.4	2485.6	2462.0	2424.0	2391.3	2332.7	2277.8	2193.2	2103.2	2014.3
20°	2585.9	2579.9	2581.1	2553.9	2527.3	2488.0	2431.2	2341.2	2274.7	2166.6	2074.2
22.5°	2583.5	2583.5	2588.9	2584.1	2566.6	2538.8	2497.1	2424.6	2335.2	2225.8	2118.9
25°	2454.2	2449.3	2477.7	2485.6	2516.4	2521.8	2508.6	2466.9	2386.5	2274.1	2145.4
27.5°	2146.0	2128.5	2187.7	2246.3	2324.3	2373.8	2424.6	2436.1	2398.0	2306.2	2171.4
30°	1685.7	1742.5	1769.0	1864.5	1970.8	2097.7	2208.9	2314.6	2340.6	2305.6	2199.8
32.5°	1328.0	1375.7	1396.9	1475.4	1572.7	1726.7	1907.4	2068.1	2193.8	2236.1	2182.9
35°	1064.6	1065.2	1115.9	1152.2	1244.0	1396.9	1558.8	1759.4	1958.8	2109.8	2125.5
37.5°	878.5	880.9	913.5	949.8	1023.5	1109.3	1259.7	1428.9	1668.7	1894.1	2011.3
40°	733.5	738.9	761.9	797.5	847.1	908.1	1019.3	1176.3	1368.5	1626.5	1837.3
42.5°	640.4	650.1	659.2	684.5	710.5	766.7	851.3	963.7	1134.0	1374.5	1625.8
45°	567.9	572.8	581.8	594.5	622.3	662.2	722.6	804.2	949.2	1145.5	1389.0
47.5°	512.3	509.3	519.6	530.5	549.2	578.2	620.5	691.2	799.9	964.3	1175.1
50°	455.6	454.9	461.6	469.4	487.0	506.9	540.1	590.3	672.5	803.0	992.1
52.5°	402.4	405.4	409.6	419.9	431.4	446.5	475.5	508.1	575.8	683.9	833.8
55°	356.5	358.3	364.9	370.4	379.4	395.7	414.5	444.7	493.0	571.6	701.5
57.5°	316.6	316.0	322.6	323.2	334.7	348.6	363.7	387.3	424.1	486.4	577.0
60°	276.7	274.9	280.3	284.6	290.0	300.9	313.0	335.9	363.7	406.6	481.5
62.5°	240.5	239.9	243.5	247.7	251.9	261.6	271.3	287.6	308.1	342.6	398.2
65°	205.4	207.2	209.0	210.9	213.3	219.3	229.0	241.1	256.2	281.5	324.4
67.5°	169.2	171.6	172.2	176.4	181.3	184.3	189.7	201.2	212.7	235.6	261.0
70°	130.5	129.9	130.5	132.3	139.0	145.6	153.5	161.3	168.0	183.1	203.6
72.5°	107.5	106.3	108.1	108.1	110.6	111.2	115.4	122.6	131.7	140.8	154.1
75°	87.0	87.0	87.0	87.0	89.4	90.6	92.4	94.3	97.3	102.1	113.0
77.5°	67.7	67.7	68.9	69.5	70.1	70.7	71.9	73.7	74.9	77.3	82.8
80°	50.8	51.4	50.8	51.4	51.4	52.6	53.2	55.0	55.6	58.6	60.4
82.5°	35.0	34.4	35.0	35.6	35.6	36.9	36.9	38.1	38.1	39.3	41.1
85°	20.5	19.3	20.5	19.9	21.1	19.9	20.5	21.8	21.8	22.4	24.8
87.5°	6.0	7.3	6.0	6.6	6.6	7.3	7.3	7.3	8.5	7.9	8.5
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4
2.5°	1468.8	1467.0	1458.5	1448.8	1436.1	1427.7	1421.0	1417.4	1406.5	1393.2	1384.2
5°	1547.3	1529.2	1509.8	1486.3	1464.5	1442.2	1428.3	1412.0	1392.0	1369.7	1354.0
7.5°	1625.2	1593.8	1559.4	1523.7	1487.5	1455.5	1425.9	1401.7	1371.5	1340.7	1319.5
10°	1717.7	1665.7	1612.0	1557.0	1506.8	1459.7	1423.4	1387.8	1349.7	1312.9	1285.1
12.5°	1801.7	1729.2	1665.1	1594.4	1526.8	1468.2	1412.0	1368.5	1320.7	1280.9	1248.2
15°	1869.9	1799.9	1724.9	1622.2	1537.0	1465.7	1402.3	1347.3	1291.7	1243.4	1212.6
17.5°	1941.2	1834.9	1736.4	1656.7	1545.5	1459.1	1384.8	1320.7	1260.3	1210.8	1172.1
20°	1982.3	1880.2	1770.9	1661.5	1552.7	1453.1	1363.0	1290.5	1227.1	1169.1	1134.0
22.5°	2007.1	1888.1	1771.5	1651.8	1534.6	1430.1	1341.3	1259.7	1189.6	1135.3	1089.9
25°	2025.2	1887.5	1760.6	1644.6	1526.8	1414.4	1308.7	1224.1	1149.8	1091.1	1045.2
27.5°	2039.7	1880.2	1734.6	1608.3	1489.3	1375.1	1279.7	1189.0	1114.7	1053.7	1003.5
30°	2043.3	1871.1	1703.8	1564.2	1442.8	1340.1	1237.4	1151.6	1071.8	1006.0	960.0
32.5°	2048.2	1848.8	1662.1	1511.7	1386.6	1285.1	1194.5	1113.5	1031.3	966.7	919.6
35°	2031.3	1843.4	1619.8	1449.4	1325.0	1226.5	1142.5	1067.0	986.6	923.8	876.1
37.5°	1979.9	1813.7	1577.5	1379.9	1251.3	1160.6	1090.5	1021.7	947.4	878.5	834.4
40°	1893.5	1765.4	1526.8	1317.7	1181.8	1088.1	1026.5	972.7	901.4	838.0	789.7
42.5°	1764.8	1699.6	1478.4	1252.5	1103.2	1013.8	964.3	914.7	854.3	789.7	745.0
45°	1601.7	1612.0	1408.9	1182.4	1031.9	941.3	892.4	857.3	801.7	748.6	702.1
47.5°	1403.5	1489.3	1334.6	1108.7	954.6	869.4	826.5	794.5	755.8	700.8	658.0
50°	1210.2	1347.3	1241.6	1034.4	882.7	798.1	755.8	731.1	698.4	657.3	616.9
52.5°	1031.9	1181.8	1129.2	951.6	804.8	729.2	688.2	668.8	644.7	606.6	571.0
55°	870.6	1019.9	1005.4	868.2	726.8	657.3	625.9	603.0	585.5	556.5	527.4
57.5°	730.5	874.9	877.9	775.8	659.2	588.5	561.3	543.2	531.1	508.1	479.7
60°	599.3	729.2	754.6	682.1	585.5	525.0	498.4	484.6	475.5	458.0	437.4
62.5°	490.6	596.3	625.9	578.8	514.8	459.2	439.8	426.6	421.1	406.6	389.1
65°	392.1	483.9	511.7	482.7	445.9	400.6	383.7	372.2	366.7	358.3	345.0
67.5°	309.3	380.6	410.8	386.7	372.8	340.8	329.3	322.6	317.8	311.8	300.3
70°	236.8	286.4	317.8	312.4	301.5	286.4	278.5	274.3	269.5	264.6	255.0
72.5°	178.8	209.0	238.0	242.9	234.4	234.4	227.8	226.6	224.2	218.1	213.9
75°	126.3	149.8	170.4	178.2	181.9	184.9	181.9	181.3	180.6	175.8	172.8
77.5°	87.6	102.7	116.6	130.5	135.3	139.6	140.2	142.6	140.8	137.8	136.5
80°	63.4	66.5	75.5	87.0	96.1	99.7	102.1	103.3	102.7	102.1	99.7
82.5°	41.7	44.1	47.1	54.4	61.6	68.3	69.5	68.9	70.7	71.3	69.5
85°	24.8	25.4	26.6	27.8	32.0	38.7	40.5	41.7	42.9	42.9	39.3
87.5°	9.7	9.1	10.3	10.3	12.1	12.7	16.3	19.3	19.9	17.5	17.5
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°	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4	1411.4
2.5°	1381.2	1373.3	1367.9	1355.8	1347.9	1339.5	1331.0	1336.4	1335.8	1335.2	1335.2
5°	1340.7	1326.8	1314.1	1297.8	1287.5	1274.8	1265.2	1263.9	1266.4	1257.9	1253.1
7.5°	1302.6	1284.5	1266.4	1249.4	1230.7	1216.2	1207.2	1203.5	1196.9	1191.4	1186.6
10°	1262.1	1239.8	1222.3	1199.9	1179.4	1161.2	1149.8	1141.9	1137.7	1133.4	1125.6
12.5°	1220.4	1198.7	1175.1	1149.2	1129.8	1108.1	1100.2	1091.1	1082.1	1077.3	1065.8
15°	1180.0	1151.6	1128.0	1101.4	1079.7	1059.1	1047.0	1029.5	1027.1	1021.1	1010.2
17.5°	1140.7	1109.3	1074.8	1056.7	1035.0	1013.2	993.9	988.4	970.3	964.3	954.0
20°	1092.4	1064.0	1039.2	1013.2	977.6	957.6	943.1	935.3	921.4	912.9	906.9
22.5°	1050.7	1021.7	992.1	960.6	932.9	909.9	900.2	886.9	880.9	868.2	861.6
25°	1011.4	980.0	945.5	912.9	891.8	874.9	857.9	847.1	836.2	830.7	818.7
27.5°	963.7	932.3	899.0	873.6	849.5	832.6	816.2	807.2	793.3	784.2	777.6
30°	925.6	886.9	859.1	836.8	803.6	787.9	776.4	764.3	754.6	745.0	738.3
32.5°	881.5	847.1	821.1	792.1	768.5	751.0	735.3	725.0	717.2	708.1	701.5
35°	835.0	805.4	778.2	750.4	731.7	714.1	696.6	687.6	679.7	671.2	665.2
37.5°	792.7	764.9	739.5	712.9	690.0	674.9	660.4	654.3	643.5	637.4	631.4
40°	754.0	726.8	699.0	673.7	649.5	638.6	625.9	615.7	606.0	601.8	595.1
42.5°	711.7	684.5	662.2	634.4	615.7	600.0	588.5	577.0	570.3	563.7	560.7
45°	670.0	645.9	622.9	595.7	577.0	564.3	551.0	540.7	534.1	529.9	523.2
47.5°	630.2	605.4	582.4	558.3	540.1	525.6	511.7	505.1	496.0	491.2	486.4
50°	586.1	564.3	539.5	517.8	499.7	485.2	474.3	465.2	457.4	450.7	447.7
52.5°	545.6	522.0	501.5	481.5	462.2	445.3	435.6	425.9	420.5	412.7	409.0
55°	500.3	477.9	459.8	439.8	421.1	407.2	395.1	386.7	380.6	372.2	367.3
57.5°	458.6	439.2	416.9	399.4	379.4	368.6	358.3	346.2	338.9	332.3	327.5
60°	416.3	393.3	374.6	358.3	341.4	326.3	317.2	308.1	300.3	293.6	289.4
62.5°	372.2	352.8	335.3	317.2	302.1	289.4	278.5	271.3	264.6	261.0	256.8
65°	326.9	311.2	293.0	278.5	264.0	254.4	245.9	239.3	234.4	231.4	227.8
67.5°	285.2	270.1	253.8	238.7	229.0	221.1	215.1	209.0	206.6	203.0	200.6
70°	244.7	229.0	215.1	204.2	194.5	189.1	185.5	181.3	178.8	174.0	171.6
72.5°	200.6	190.3	181.3	172.8	165.5	160.7	155.9	150.4	146.2	140.8	138.4
75°	164.9	154.7	146.8	140.8	135.9	129.3	122.6	117.2	115.4	113.6	113.0
77.5°	128.7	122.0	116.0	111.2	104.5	98.5	96.7	95.5	94.9	93.6	93.6
80°	96.1	90.0	85.8	79.8	76.1	76.1	76.1	74.9	75.5	75.5	75.5
82.5°	65.3	59.8	58.0	56.8	56.8	57.4	57.4	58.0	57.4	58.6	58.0
85°	36.9	37.5	38.7	38.1	38.7	38.7	39.9	39.3	39.9	38.7	39.9
87.5°	16.9	18.7	19.3	19.9	20.5	19.9	20.5	20.5	21.1	21.1	21.1
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: P242583

CATALOG NUMBER: S123RDR-S1165D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1411.4	1411.4	1411.4	1411.4
2.5°	1328.0	1327.4	1328.0	1325.6
5°	1251.3	1250.7	1248.8	1243.4
7.5°	1181.8	1180.6	1175.7	1176.9
10°	1121.4	1122.0	1114.7	1110.5
12.5°	1062.8	1059.1	1053.7	1048.9
15°	1012.6	1006.6	992.1	993.3
17.5°	950.4	945.5	944.9	936.5
20°	897.2	894.2	895.4	886.9
22.5°	855.5	852.5	845.9	844.6
25°	815.0	810.2	805.4	808.4
27.5°	774.0	770.3	764.9	764.9
30°	735.3	731.7	729.2	726.2
32.5°	696.0	696.0	691.2	691.2
35°	662.8	659.2	658.0	658.6
37.5°	630.8	625.9	623.5	621.1
40°	595.7	590.9	589.7	588.5
42.5°	556.5	555.2	554.6	552.2
45°	521.4	520.8	517.2	518.4
47.5°	483.9	480.9	479.1	480.9
50°	445.3	444.1	438.6	439.8
52.5°	406.6	401.2	400.0	398.8
55°	363.1	357.7	355.3	354.0
57.5°	320.2	318.4	316.0	317.8
60°	283.4	283.4	283.4	282.8
62.5°	255.0	253.2	252.5	253.8
65°	226.0	225.4	222.9	222.3
67.5°	199.4	197.0	197.0	195.8
70°	168.6	167.4	163.7	164.3
72.5°	135.3	134.1	134.1	132.9
75°	112.4	111.8	111.2	113.6
77.5°	93.6	93.6	94.3	93.0
80°	75.5	75.5	74.9	74.9
82.5°	56.8	57.4	58.0	56.8
85°	39.9	39.3	40.5	39.9
87.5°	22.4	21.1	21.1	21.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)