

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: P242577

Luminaire Tested: **S123RDR-S1000D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242577
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-S1000D840-X4F0-XX-UDD-A-W
Description: DEFINE 3 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: 3745.5 lumens
Efficiency: N/A
Efficacy: 107.6 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

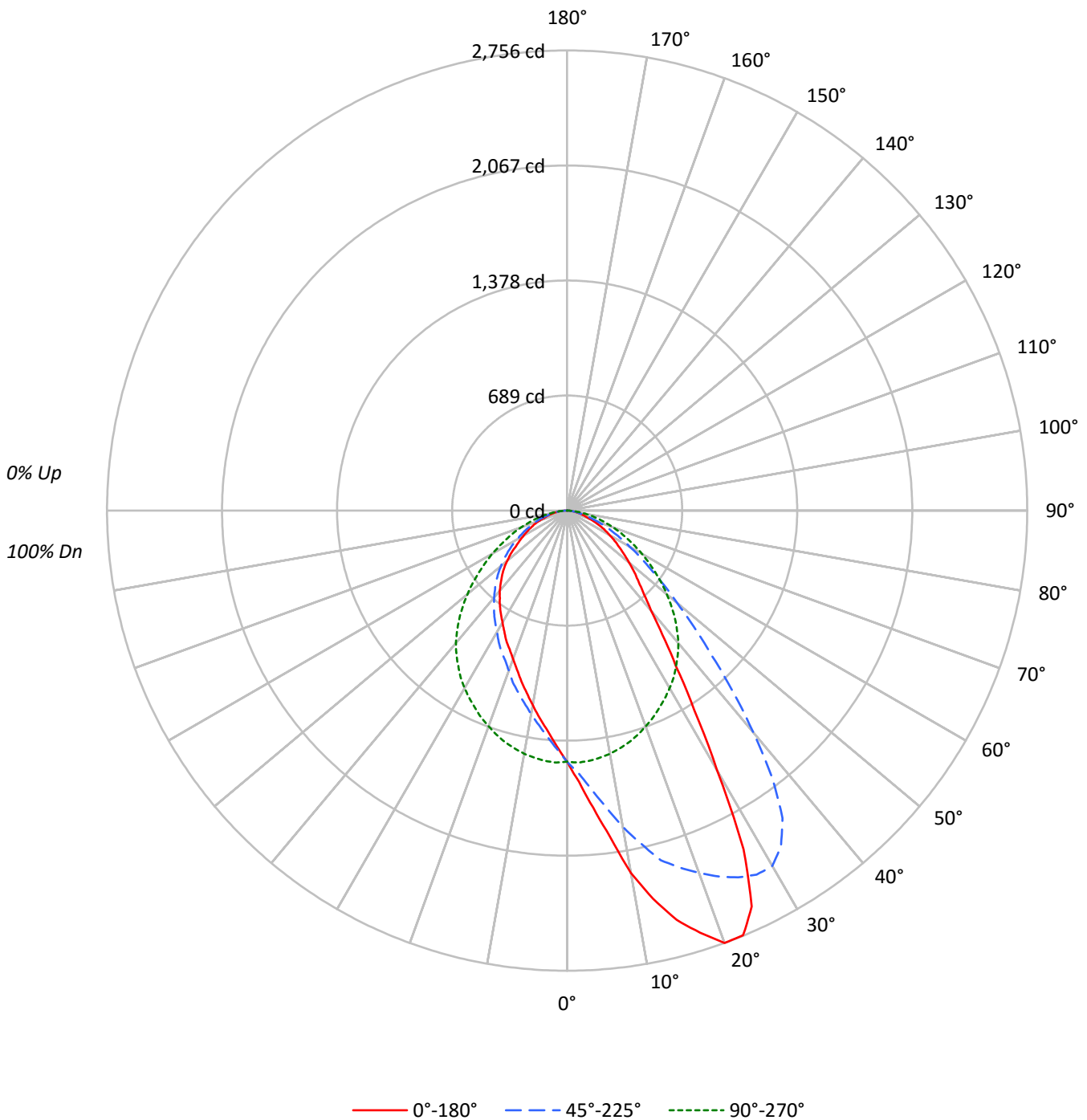
Input Watts (W): 34.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	18233	18233	18233
5°	21735	18311	16124
10°	27137	18205	14567
15°	31854	18020	13284
20°	35550	17741	12194
25°	34982	17448	11523
30°	25146	17178	10833
35°	16789	16827	10386
40°	12369	16404	9924
45°	10376	15663	9471
50°	9155	14694	8840
55°	8028	13580	7973
60°	7149	12519	7307
65°	6278	11378	6797
70°	4930	10359	6206
75°	4341	9048	5671
80°	3776	7685	5570
85°	3046	6175	5911



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.7	3.9
10°-20°	462.4	12.3
20°-30°	728.3	19.4
30°-40°	757.4	20.2
40°-50°	648.0	17.3
50°-60°	493.8	13.2
60°-70°	316.4	8.4
70°-80°	151.6	4.0
80°-90°	39.9	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°	1338.4	35.7
0°-40°	2095.8	56.0
0°-60°	3237.6	86.4
0°-90°	3745.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3745.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1504	1504	1504	1504	1504	
5°	1786	1676	1505	1359	1325	183
15°	2538	2168	1436	1129	1059	720
25°	2616	2424	1305	932	862	1137
35°	1135	2249	1137	761	702	738
45°	605	1221	914	601	552	475
55°	380	609	643	434	377	343
65°	219	300	397	271	237	216
75°	93	109	193	138	121	99
85°	22	24	44	41	42	25
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°	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2
2.5°	1626.6	1629.1	1620.8	1619.5	1609.8	1607.2	1607.2	1593.7	1585.3	1574.4	1568.0
5°	1786.3	1796.6	1791.4	1779.8	1760.5	1756.0	1743.8	1724.4	1702.5	1675.5	1662.6
7.5°	1969.1	1990.4	1986.5	1968.5	1947.9	1935.0	1900.9	1873.2	1831.3	1793.3	1763.7
10°	2204.8	2190.0	2178.4	2161.0	2142.3	2112.1	2076.0	2026.4	1969.1	1924.1	1873.8
12.5°	2381.2	2381.9	2366.4	2348.4	2320.1	2291.7	2245.4	2182.3	2113.4	2043.2	1983.9
15°	2538.4	2542.2	2532.6	2513.9	2476.5	2425.7	2358.7	2333.6	2238.3	2167.5	2096.6
17.5°	2650.4	2651.0	2649.1	2624.0	2583.4	2548.7	2486.2	2427.6	2337.5	2241.5	2146.8
20°	2756.0	2749.6	2750.9	2721.9	2693.5	2651.7	2591.2	2495.2	2424.4	2309.1	2210.6
22.5°	2753.4	2753.4	2759.2	2754.1	2735.4	2705.8	2661.3	2584.1	2488.8	2372.2	2258.2
25°	2615.6	2610.5	2640.7	2649.1	2682.0	2687.7	2673.6	2629.2	2543.5	2423.7	2286.6
27.5°	2287.2	2268.6	2331.7	2394.1	2477.2	2530.0	2584.1	2596.3	2555.7	2457.9	2314.3
30°	1796.6	1857.1	1885.4	1987.2	2100.5	2235.7	2354.2	2466.9	2494.6	2457.2	2344.5
32.5°	1415.3	1466.2	1488.8	1572.5	1676.1	1840.3	2032.9	2204.2	2338.1	2383.2	2326.5
35°	1134.6	1135.2	1189.3	1228.0	1325.8	1488.8	1661.3	1875.1	2087.6	2248.6	2265.3
37.5°	936.3	938.8	973.6	1012.3	1090.8	1182.2	1342.6	1522.9	1778.5	2018.7	2143.6
40°	781.7	787.5	812.0	850.0	902.8	967.8	1086.3	1253.7	1458.5	1733.4	1958.2
42.5°	682.6	692.9	702.5	729.6	757.3	817.1	907.3	1027.1	1208.6	1464.9	1732.8
45°	605.3	610.4	620.1	633.6	663.2	705.7	770.1	857.1	1011.6	1220.9	1480.4
47.5°	546.0	542.8	553.8	565.4	585.3	616.2	661.3	736.7	852.6	1027.7	1252.4
50°	485.5	484.9	492.0	500.3	519.0	540.3	575.7	629.1	716.7	855.8	1057.3
52.5°	428.9	432.1	436.6	447.5	459.8	475.9	506.8	541.5	613.7	728.9	888.6
55°	379.9	381.8	388.9	394.7	404.4	421.8	441.7	473.9	525.4	609.2	747.6
57.5°	337.4	336.8	343.9	344.5	356.7	371.5	387.6	412.8	452.0	518.4	614.9
60°	294.9	293.0	298.8	303.3	309.1	320.7	333.6	358.0	387.6	433.4	513.2
62.5°	256.3	255.6	259.5	264.0	268.5	278.8	289.1	306.5	328.4	365.1	424.3
65°	218.9	220.9	222.8	224.7	227.3	233.7	244.0	256.9	273.0	300.1	345.8
67.5°	180.3	182.9	183.5	188.0	193.2	196.4	202.2	214.4	226.7	251.1	278.2
70°	139.1	138.4	139.1	141.0	148.1	155.2	163.6	171.9	179.0	195.1	217.0
72.5°	114.6	113.3	115.3	115.3	117.8	118.5	123.0	130.7	140.4	150.0	164.2
75°	92.7	92.7	92.7	92.7	95.3	96.6	98.5	100.5	103.7	108.8	120.4
77.5°	72.1	72.1	73.4	74.1	74.7	75.3	76.6	78.6	79.8	82.4	88.2
80°	54.1	54.7	54.1	54.7	54.7	56.0	56.7	58.6	59.2	62.5	64.4
82.5°	37.3	36.7	37.3	38.0	38.0	39.3	39.3	40.6	40.6	41.9	43.8
85°	21.9	20.6	21.9	21.2	22.5	21.2	21.9	23.2	23.2	23.8	26.4
87.5°	6.4	7.7	6.4	7.1	7.1	7.7	7.7	7.7	9.0	8.4	9.0
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°	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2
2.5°	1565.4	1563.5	1554.4	1544.1	1530.6	1521.6	1514.5	1510.7	1499.1	1484.9	1475.2
5°	1649.1	1629.8	1609.2	1584.1	1560.9	1537.1	1522.2	1504.9	1483.6	1459.8	1443.0
7.5°	1732.2	1698.7	1662.0	1624.0	1585.3	1551.2	1519.7	1493.9	1461.7	1428.9	1406.3
10°	1830.7	1775.3	1718.0	1659.4	1606.0	1555.7	1517.1	1479.1	1438.5	1399.3	1369.6
12.5°	1920.2	1842.9	1774.7	1699.3	1627.2	1564.7	1504.9	1458.5	1407.6	1365.1	1330.4
15°	1993.0	1918.3	1838.4	1728.9	1638.1	1562.2	1494.6	1436.0	1376.7	1325.2	1292.4
17.5°	2068.9	1955.6	1850.6	1765.6	1647.2	1555.1	1475.9	1407.6	1343.2	1290.4	1249.2
20°	2112.7	2003.9	1887.3	1770.8	1654.9	1548.6	1452.7	1375.4	1307.8	1246.0	1208.6
22.5°	2139.1	2012.3	1888.0	1760.5	1635.6	1524.2	1429.5	1342.6	1267.9	1209.9	1161.6
25°	2158.4	2011.6	1876.4	1752.8	1627.2	1507.4	1394.7	1304.6	1225.4	1162.9	1114.0
27.5°	2173.9	2003.9	1848.7	1714.1	1587.3	1465.6	1363.8	1267.2	1188.0	1123.0	1069.6
30°	2177.8	1994.2	1815.9	1667.1	1537.7	1428.2	1318.8	1227.3	1142.3	1072.1	1023.2
32.5°	2182.9	1970.4	1771.4	1611.1	1477.8	1369.6	1273.0	1186.8	1099.2	1030.3	980.1
35°	2164.9	1964.6	1726.4	1544.8	1412.1	1307.2	1217.7	1137.2	1051.5	984.6	933.7
37.5°	2110.1	1933.1	1681.3	1470.7	1333.6	1237.0	1162.3	1088.9	1009.7	936.3	889.3
40°	2018.1	1881.6	1627.2	1404.4	1259.5	1159.7	1094.0	1036.7	960.7	893.1	841.6
42.5°	1880.9	1811.4	1575.7	1334.9	1175.8	1080.5	1027.7	974.9	910.5	841.6	794.0
45°	1707.0	1718.0	1501.6	1260.2	1099.8	1003.2	951.1	913.7	854.5	797.8	748.2
47.5°	1495.8	1587.3	1422.4	1181.6	1017.4	926.6	880.9	846.8	805.6	747.0	701.2
50°	1289.8	1436.0	1323.3	1102.4	940.8	850.6	805.6	779.2	744.4	700.6	657.4
52.5°	1099.8	1259.5	1203.5	1014.2	857.7	777.2	733.4	712.8	687.1	646.5	608.5
55°	927.9	1086.9	1071.5	925.3	774.6	700.6	667.1	642.6	624.0	593.1	562.1
57.5°	778.5	932.4	935.6	826.8	702.5	627.2	598.2	578.9	566.0	541.5	511.3
60°	638.8	777.2	804.3	727.0	624.0	559.6	531.2	516.4	506.8	488.1	466.2
62.5°	522.9	635.6	667.1	616.9	548.6	489.4	468.8	454.6	448.8	433.4	414.7
65°	417.9	515.8	545.4	514.5	475.2	426.9	408.9	396.7	390.9	381.8	367.7
67.5°	329.7	405.7	437.9	412.1	397.3	363.2	350.9	343.9	338.7	332.3	320.0
70°	252.4	305.2	338.7	332.9	321.3	305.2	296.8	292.3	287.2	282.0	271.7
72.5°	190.6	222.8	253.7	258.9	249.8	249.8	242.8	241.5	238.9	232.5	227.9
75°	134.6	159.7	181.6	190.0	193.8	197.0	193.8	193.2	192.5	187.4	184.2
77.5°	93.4	109.5	124.3	139.1	144.2	148.7	149.4	152.0	150.0	146.8	145.5
80°	67.6	70.8	80.5	92.7	102.4	106.2	108.8	110.1	109.5	108.8	106.2
82.5°	44.4	47.0	50.2	58.0	65.7	72.8	74.1	73.4	75.3	76.0	74.1
85°	26.4	27.0	28.3	29.6	34.1	41.2	43.1	44.4	45.7	45.7	41.9
87.5°	10.3	9.7	10.9	10.9	12.9	13.5	17.4	20.6	21.2	18.7	18.7
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2	1504.2
2.5°	1472.0	1463.6	1457.8	1445.0	1436.6	1427.6	1418.6	1424.4	1423.7	1423.1	1423.1
5°	1428.9	1414.1	1400.5	1383.2	1372.2	1358.7	1348.4	1347.1	1349.7	1340.7	1335.5
7.5°	1388.3	1369.0	1349.7	1331.6	1311.7	1296.2	1286.6	1282.7	1275.6	1269.8	1264.7
10°	1345.2	1321.3	1302.7	1278.8	1256.9	1237.6	1225.4	1217.0	1212.5	1208.0	1199.6
12.5°	1300.7	1277.5	1252.4	1224.7	1204.1	1181.0	1172.6	1162.9	1153.3	1148.1	1135.9
15°	1257.6	1227.3	1202.2	1173.9	1150.7	1128.8	1115.9	1097.3	1094.7	1088.2	1076.6
17.5°	1215.7	1182.2	1145.5	1126.2	1103.0	1079.9	1059.3	1053.5	1034.1	1027.7	1016.8
20°	1164.2	1134.0	1107.6	1079.9	1041.9	1020.6	1005.2	996.8	982.0	973.0	966.5
22.5°	1119.8	1088.9	1057.3	1023.8	994.2	969.8	959.5	945.3	938.8	925.3	918.2
25°	1077.9	1044.4	1007.7	973.0	950.4	932.4	914.4	902.8	891.2	885.4	872.5
27.5°	1027.1	993.6	958.2	931.1	905.4	887.3	869.9	860.3	845.5	835.8	828.7
30°	986.5	945.3	915.7	891.8	856.4	839.7	827.4	814.6	804.3	794.0	786.9
32.5°	939.5	902.8	875.1	844.2	819.1	800.4	783.7	772.7	764.3	754.7	747.6
35°	889.9	858.4	829.4	799.8	779.8	761.1	742.4	732.8	724.4	715.4	709.0
37.5°	844.8	815.2	788.2	759.8	735.4	719.3	703.8	697.4	685.8	679.3	672.9
40°	803.6	774.6	745.0	718.0	692.2	680.6	667.1	656.2	645.9	641.4	634.3
42.5°	758.5	729.6	705.7	676.1	656.2	639.4	627.2	614.9	607.9	600.8	597.6
45°	714.1	688.4	663.9	634.9	614.9	601.4	587.3	576.3	569.2	564.7	557.6
47.5°	671.6	645.2	620.7	595.0	575.7	560.2	545.4	538.3	528.7	523.5	518.4
50°	624.6	601.4	575.0	551.8	532.5	517.1	505.5	495.8	487.5	480.4	477.1
52.5°	581.5	556.4	534.5	513.2	492.6	474.6	464.3	454.0	448.2	439.8	435.9
55°	533.2	509.3	490.0	468.8	448.8	434.0	421.1	412.1	405.7	396.7	391.5
57.5°	488.7	468.1	444.3	425.6	404.4	392.8	381.8	369.0	361.2	354.2	349.0
60°	443.7	419.2	399.2	381.8	363.8	347.7	338.1	328.4	320.0	312.9	308.4
62.5°	396.7	376.1	357.4	338.1	322.0	308.4	296.8	289.1	282.0	278.2	273.7
65°	348.4	331.6	312.3	296.8	281.4	271.1	262.1	255.0	249.8	246.6	242.8
67.5°	303.9	287.8	270.4	254.4	244.0	235.7	229.2	222.8	220.2	216.4	213.8
70°	260.8	244.0	229.2	217.6	207.3	201.5	197.7	193.2	190.6	185.5	182.9
72.5°	213.8	202.8	193.2	184.2	176.4	171.3	166.1	160.3	155.8	150.0	147.5
75°	175.8	164.8	156.5	150.0	144.9	137.8	130.7	124.9	123.0	121.1	120.4
77.5°	137.2	130.1	123.6	118.5	111.4	105.0	103.0	101.7	101.1	99.8	99.8
80°	102.4	95.9	91.4	85.0	81.1	81.1	81.1	79.8	80.5	80.5	80.5
82.5°	69.5	63.7	61.8	60.5	60.5	61.2	61.2	61.8	61.2	62.5	61.8
85°	39.3	39.9	41.2	40.6	41.2	41.2	42.5	41.9	42.5	41.2	42.5
87.5°	18.0	20.0	20.6	21.2	21.9	21.2	21.9	21.9	22.5	22.5	22.5
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: P242577

CATALOG NUMBER: S123RDR-S1000D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1504.2	1504.2	1504.2	1504.2
2.5°	1415.3	1414.7	1415.3	1412.8
5°	1333.6	1332.9	1331.0	1325.2
7.5°	1259.5	1258.2	1253.1	1254.4
10°	1195.1	1195.8	1188.0	1183.5
12.5°	1132.7	1128.8	1123.0	1117.9
15°	1079.2	1072.8	1057.3	1058.6
17.5°	1012.9	1007.7	1007.1	998.1
20°	956.2	953.0	954.3	945.3
22.5°	911.8	908.6	901.5	900.2
25°	868.7	863.5	858.4	861.6
27.5°	824.9	821.0	815.2	815.2
30°	783.7	779.8	777.2	774.0
32.5°	741.8	741.8	736.7	736.7
35°	706.4	702.5	701.2	701.9
37.5°	672.3	667.1	664.5	662.0
40°	634.9	629.8	628.5	627.2
42.5°	593.1	591.8	591.1	588.5
45°	555.7	555.1	551.2	552.5
47.5°	515.8	512.6	510.6	512.6
50°	474.6	473.3	467.5	468.8
52.5°	433.4	427.6	426.3	425.0
55°	387.0	381.2	378.6	377.3
57.5°	341.3	339.3	336.8	338.7
60°	302.0	302.0	302.0	301.4
62.5°	271.7	269.8	269.2	270.4
65°	240.8	240.2	237.6	237.0
67.5°	212.5	209.9	209.9	208.6
70°	179.7	178.4	174.5	175.1
72.5°	144.2	143.0	143.0	141.7
75°	119.8	119.1	118.5	121.1
77.5°	99.8	99.8	100.5	99.2
80°	80.5	80.5	79.8	79.8
82.5°	60.5	61.2	61.8	60.5
85°	42.5	41.9	43.1	42.5
87.5°	23.8	22.5	22.5	23.2
90°	0.0	0.0	0.0	0.0

(END OF REPORT)