

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: P242592

Luminaire Tested: **S123RDR-S1000D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242592
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-S1000D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3307.3 lumens
Efficiency: N/A
Efficacy: 95.0 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

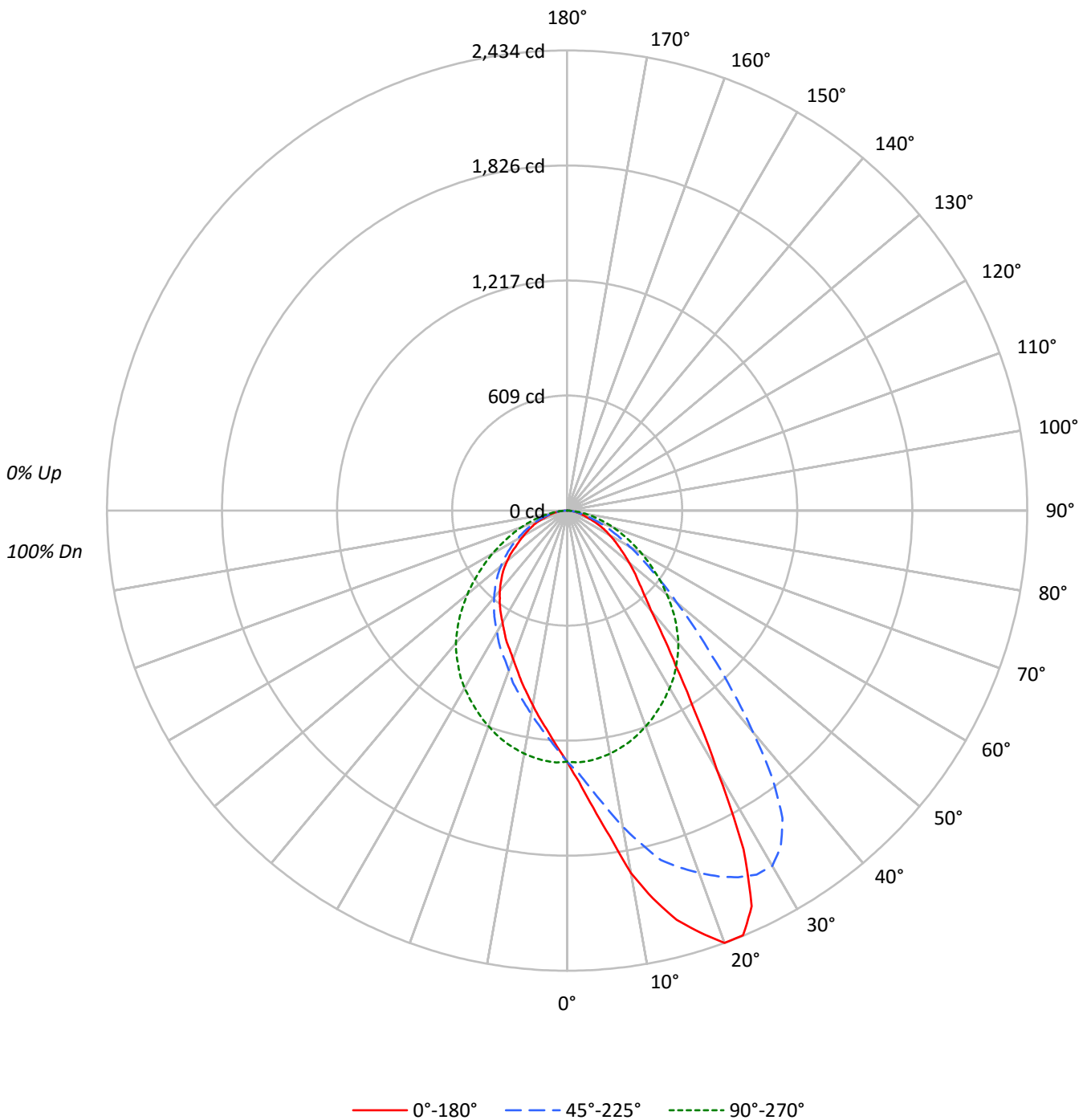
Input Watts (W): 34.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P242592

CATALOG NUMBER: S123RDR-S1000D940-X4F0-XX-UDD-A-W

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	100	100	100	100	100		
1	110	106	102	99	108	104	100	97	100	97	94	96	93	91	92	90	89	87	87	87	87	87	87	87		
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	74	74	74	74	74	74	74		
3	93	84	76	71	91	82	75	70	79	74	69	77	72	68	74	70	66	64	64	64	64	64	64	64		
4	86	75	67	61	84	74	66	61	71	65	60	69	64	59	67	62	58	56	56	56	56	56	56	56		
5	80	68	60	53	78	67	59	53	65	58	53	63	57	52	61	56	52	50	50	50	50	50	50	50		
6	74	62	53	47	72	61	53	47	59	52	47	57	51	46	56	50	46	44	44	44	44	44	44	44		
7	69	56	48	42	67	55	48	42	54	47	42	53	46	42	51	46	41	39	39	39	39	39	39	39		
8	64	52	44	38	63	51	43	38	50	43	38	48	42	38	47	42	37	36	36	36	36	36	36	36		
9	60	48	40	35	59	47	40	35	46	39	34	45	39	34	44	38	34	32	32	32	32	32	32	32		
10	57	44	37	32	55	44	36	32	43	36	31	42	36	31	41	35	31	29	29	29	29	29	29	29		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	16099	16099	16099
5°	19192	16168	14238
10°	23962	16075	12863
15°	28127	15911	11731
20°	31391	15666	10767
25°	30889	15407	10175
30°	22204	15168	9565
35°	14824	14858	9171
40°	10923	14484	8763
45°	9162	13830	8362
50°	8084	12974	7805
55°	7090	11991	7041
60°	6313	11055	6451
65°	5544	10044	6000
70°	4352	9147	5483
75°	3836	7990	5006
80°	3337	6785	4921
85°	2684	5452	5215



TEST NUMBER: P242592

CATALOG NUMBER: S123RDR-S1000D940-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	130.4	3.9
10°-20°	408.3	12.3
20°-30°	643.1	19.4
30°-40°	668.8	20.2
40°-50°	572.1	17.3
50°-60°	436.1	13.2
60°-70°	279.4	8.4
70°-80°	133.9	4.0
80°-90°	35.2	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°	1181.8	35.7
0°-40°	1850.6	56.0
0°-60°	2858.8	86.4
0°-90°	3307.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3307.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1328	1328	1328	1328	1328	
5°	1577	1480	1329	1200	1170	162
15°	2241	1914	1268	997	935	636
25°	2310	2140	1152	823	761	1004
35°	1002	1986	1004	672	620	651
45°	534	1078	807	531	488	419
55°	336	538	567	383	333	303
65°	193	265	350	239	209	190
75°	82	96	171	122	107	88
85°	19	21	39	36	38	22
90°	0	0	0	0	0	



TEST NUMBER: P242592

CATALOG NUMBER: S123RDR-S1000D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2
2.5°	1436.3	1438.5	1431.1	1430.0	1421.5	1419.2	1419.2	1407.3	1399.9	1390.2	1384.5
5°	1577.3	1586.4	1581.8	1571.6	1554.5	1550.5	1539.7	1522.7	1503.3	1479.5	1468.1
7.5°	1738.7	1757.5	1754.1	1738.2	1720.0	1708.6	1678.5	1654.0	1617.1	1583.5	1557.4
10°	1946.8	1933.8	1923.5	1908.2	1891.7	1865.0	1833.1	1789.3	1738.7	1698.9	1654.6
12.5°	2102.6	2103.2	2089.6	2073.6	2048.6	2023.6	1982.7	1926.9	1866.1	1804.1	1751.8
15°	2241.4	2244.8	2236.3	2219.8	2186.8	2141.9	2082.7	2060.6	1976.4	1913.9	1851.3
17.5°	2340.3	2340.9	2339.2	2317.0	2281.2	2250.5	2195.3	2143.6	2064.0	1979.3	1895.7
20°	2433.6	2427.9	2429.0	2403.4	2378.4	2341.4	2288.0	2203.3	2140.7	2039.0	1952.0
22.5°	2431.3	2431.3	2436.4	2431.8	2415.4	2389.2	2350.0	2281.7	2197.6	2094.7	1994.0
25°	2309.6	2305.1	2331.8	2339.2	2368.2	2373.3	2360.8	2321.5	2245.9	2140.2	2019.1
27.5°	2019.6	2003.1	2058.9	2114.0	2187.4	2234.0	2281.7	2292.5	2256.7	2170.3	2043.5
30°	1586.4	1639.8	1664.8	1754.7	1854.7	1974.1	2078.8	2178.3	2202.7	2169.7	2070.2
32.5°	1249.8	1294.7	1314.6	1388.5	1480.0	1625.0	1795.0	1946.3	2064.5	2104.3	2054.3
35°	1001.8	1002.4	1050.2	1084.3	1170.7	1314.6	1467.0	1655.7	1843.4	1985.5	2000.3
37.5°	826.7	829.0	859.7	893.8	963.2	1043.9	1185.5	1344.7	1570.4	1782.5	1892.8
40°	690.3	695.4	717.0	750.5	797.2	854.6	959.2	1107.0	1287.8	1530.6	1729.1
42.5°	602.7	611.8	620.3	644.2	668.7	721.5	801.1	906.9	1067.2	1293.5	1530.1
45°	534.5	539.0	547.5	559.5	585.6	623.2	680.0	756.8	893.2	1078.0	1307.2
47.5°	482.2	479.3	489.0	499.2	516.8	544.1	583.9	650.5	752.8	907.5	1105.9
50°	428.7	428.1	434.4	441.8	458.3	477.0	508.3	555.5	632.8	755.7	933.6
52.5°	378.7	381.5	385.5	395.2	406.0	420.2	447.5	478.2	541.9	643.6	784.6
55°	335.5	337.2	343.4	348.5	357.1	372.4	390.1	418.5	464.0	537.9	660.1
57.5°	297.9	297.4	303.6	304.2	315.0	328.1	342.3	364.5	399.1	457.7	543.0
60°	260.4	258.7	263.8	267.8	272.9	283.2	294.5	316.1	342.3	382.7	453.2
62.5°	226.3	225.7	229.1	233.1	237.1	246.2	255.3	270.6	290.0	322.4	374.7
65°	193.3	195.0	196.7	198.4	200.7	206.4	215.5	226.9	241.1	265.0	305.3
67.5°	159.2	161.5	162.0	166.0	170.6	173.4	178.5	189.3	200.1	221.7	245.6
70°	122.8	122.2	122.8	124.5	130.8	137.0	144.4	151.8	158.1	172.3	191.6
72.5°	101.2	100.1	101.8	101.8	104.1	104.6	108.6	115.4	124.0	132.5	145.0
75°	81.9	81.9	81.9	81.9	84.2	85.3	87.0	88.7	91.5	96.1	106.3
77.5°	63.7	63.7	64.8	65.4	66.0	66.5	67.7	69.4	70.5	72.8	77.9
80°	47.8	48.3	47.8	48.3	48.3	49.5	50.0	51.7	52.3	55.2	56.9
82.5°	33.0	32.4	33.0	33.5	33.5	34.7	34.7	35.8	35.8	37.0	38.7
85°	19.3	18.2	19.3	18.8	19.9	18.8	19.3	20.5	20.5	21.0	23.3
87.5°	5.7	6.8	5.7	6.3	6.3	6.8	6.8	6.8	8.0	7.4	8.0
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: P242592

CATALOG NUMBER: S123RDR-S1000D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2
2.5°	1382.2	1380.5	1372.6	1363.5	1351.5	1343.6	1337.3	1333.9	1323.7	1311.2	1302.6
5°	1456.2	1439.1	1420.9	1398.7	1378.3	1357.2	1344.1	1328.8	1310.0	1289.0	1274.2
7.5°	1529.5	1499.9	1467.5	1434.0	1399.9	1369.7	1341.9	1319.1	1290.7	1261.7	1241.8
10°	1616.5	1567.6	1517.0	1465.2	1418.1	1373.7	1339.6	1306.0	1270.2	1235.5	1209.4
12.5°	1695.5	1627.3	1567.0	1500.5	1436.8	1381.7	1328.8	1287.8	1242.9	1205.4	1174.7
15°	1759.8	1693.8	1623.3	1526.7	1446.5	1379.4	1319.7	1267.9	1215.6	1170.2	1141.2
17.5°	1826.9	1726.8	1634.1	1559.1	1454.4	1373.1	1303.2	1242.9	1186.1	1139.4	1103.1
20°	1865.5	1769.4	1666.5	1563.6	1461.3	1367.5	1282.7	1214.5	1154.8	1100.2	1067.2
22.5°	1888.8	1776.8	1667.1	1554.5	1444.2	1345.8	1262.3	1185.5	1119.5	1068.4	1025.7
25°	1905.9	1776.3	1656.9	1547.7	1436.8	1331.1	1231.6	1152.0	1082.0	1026.9	983.7
27.5°	1919.5	1769.4	1632.4	1513.6	1401.6	1294.1	1204.3	1119.0	1049.0	991.6	944.4
30°	1923.0	1760.9	1603.4	1472.1	1357.8	1261.1	1164.5	1083.7	1008.7	946.7	903.5
32.5°	1927.5	1739.9	1564.2	1422.6	1304.9	1209.4	1124.1	1047.9	970.6	909.7	865.4
35°	1911.6	1734.8	1524.4	1364.0	1246.9	1154.2	1075.2	1004.1	928.5	869.4	824.5
37.5°	1863.3	1706.9	1484.6	1298.7	1177.5	1092.3	1026.3	961.5	891.5	826.7	785.2
40°	1782.0	1661.4	1436.8	1240.1	1112.2	1024.0	966.0	915.4	848.3	788.6	743.1
42.5°	1660.8	1599.4	1391.3	1178.7	1038.2	954.1	907.5	860.8	804.0	743.1	701.1
45°	1507.3	1517.0	1325.9	1112.7	971.1	885.9	839.8	806.8	754.5	704.5	660.7
47.5°	1320.8	1401.6	1256.0	1043.4	898.4	818.2	777.8	747.7	711.3	659.6	619.2
50°	1138.9	1267.9	1168.4	973.4	830.7	751.1	711.3	688.0	657.3	618.6	580.5
52.5°	971.1	1112.2	1062.7	895.5	757.4	686.3	647.6	629.4	606.7	570.9	537.3
55°	819.3	959.8	946.1	817.1	684.0	618.6	589.1	567.4	551.0	523.7	496.4
57.5°	687.4	823.3	826.2	730.1	620.3	553.8	528.2	511.2	499.8	478.2	451.5
60°	564.0	686.3	710.2	641.9	551.0	494.1	469.1	456.0	447.5	431.0	411.7
62.5°	461.7	561.2	589.1	544.7	484.4	432.1	413.9	401.4	396.3	382.7	366.2
65°	369.0	455.4	481.6	454.3	419.6	377.0	361.1	350.2	345.1	337.2	324.7
67.5°	291.1	358.2	386.6	363.9	350.8	320.7	309.9	303.6	299.1	293.4	282.6
70°	222.9	269.5	299.1	294.0	283.7	269.5	262.1	258.1	253.6	249.0	239.9
72.5°	168.3	196.7	224.0	228.6	220.6	220.6	214.4	213.2	210.9	205.3	201.3
75°	118.8	141.0	160.3	167.7	171.1	174.0	171.1	170.6	170.0	165.5	162.6
77.5°	82.4	96.7	109.7	122.8	127.4	131.3	131.9	134.2	132.5	129.6	128.5
80°	59.7	62.5	71.1	81.9	90.4	93.8	96.1	97.2	96.7	96.1	93.8
82.5°	39.2	41.5	44.3	51.2	58.0	64.3	65.4	64.8	66.5	67.1	65.4
85°	23.3	23.9	25.0	26.2	30.1	36.4	38.1	39.2	40.4	40.4	37.0
87.5°	9.1	8.5	9.7	9.7	11.4	11.9	15.4	18.2	18.8	16.5	16.5
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: P242592

CATALOG NUMBER: S123RDR-S1000D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2	1328.2
2.5°	1299.8	1292.4	1287.3	1275.9	1268.5	1260.6	1252.6	1257.7	1257.1	1256.6	1256.6
5°	1261.7	1248.6	1236.7	1221.3	1211.7	1199.7	1190.6	1189.5	1191.8	1183.8	1179.2
7.5°	1225.9	1208.8	1191.8	1175.8	1158.2	1144.6	1136.0	1132.6	1126.4	1121.3	1116.7
10°	1187.8	1166.7	1150.3	1129.2	1109.9	1092.8	1082.0	1074.6	1070.6	1066.7	1059.3
12.5°	1148.5	1128.1	1105.9	1081.5	1063.3	1042.8	1035.4	1026.9	1018.3	1013.8	1003.0
15°	1110.5	1083.7	1061.6	1036.5	1016.1	996.7	985.4	968.9	966.6	960.9	950.7
17.5°	1073.5	1043.9	1011.5	994.5	974.0	953.5	935.3	930.2	913.2	907.5	897.8
20°	1028.0	1001.3	978.0	953.5	920.0	901.2	887.6	880.2	867.1	859.1	853.4
22.5°	988.8	961.5	933.6	904.1	877.9	856.3	847.2	834.7	829.0	817.1	810.8
25°	951.8	922.2	889.8	859.1	839.2	823.3	807.4	797.2	786.9	781.8	770.4
27.5°	906.9	877.3	846.1	822.2	799.4	783.5	768.2	759.6	746.6	738.0	731.8
30°	871.1	834.7	808.5	787.5	756.2	741.4	730.6	719.3	710.2	701.1	694.8
32.5°	829.6	797.2	772.7	745.4	723.2	706.8	692.0	682.3	674.9	666.4	660.1
35°	785.8	757.9	732.3	706.2	688.6	672.1	655.6	647.1	639.7	631.7	626.0
37.5°	746.0	719.8	696.0	670.9	649.3	635.1	621.5	615.8	605.5	599.9	594.2
40°	709.6	684.0	657.9	634.0	611.2	601.0	589.1	579.4	570.3	566.3	560.1
42.5°	669.8	644.2	623.2	597.0	579.4	564.6	553.8	543.0	536.7	530.5	527.6
45°	630.6	607.8	586.2	560.6	543.0	531.1	518.6	508.9	502.6	498.7	492.4
47.5°	593.0	569.7	548.1	525.4	508.3	494.7	481.6	475.3	466.8	462.3	457.7
50°	551.5	531.1	507.7	487.3	470.2	456.6	446.3	437.8	430.4	424.2	421.3
52.5°	513.4	491.3	471.9	453.2	435.0	419.0	410.0	400.9	395.7	388.3	384.9
55°	470.8	449.8	432.7	413.9	396.3	383.2	371.9	363.9	358.2	350.2	345.7
57.5°	431.6	413.4	392.3	375.8	357.1	346.8	337.2	325.8	319.0	312.7	308.2
60°	391.8	370.2	352.5	337.2	321.3	307.0	298.5	290.0	282.6	276.3	272.4
62.5°	350.2	332.1	315.6	298.5	284.3	272.4	262.1	255.3	249.0	245.6	241.6
65°	307.6	292.8	275.8	262.1	248.5	239.4	231.4	225.2	220.6	217.8	214.4
67.5°	268.4	254.2	238.8	224.6	215.5	208.1	202.4	196.7	194.5	191.0	188.8
70°	230.3	215.5	202.4	192.2	183.1	178.0	174.6	170.6	168.3	163.8	161.5
72.5°	188.8	179.1	170.6	162.6	155.8	151.2	146.7	141.6	137.6	132.5	130.2
75°	155.2	145.6	138.2	132.5	127.9	121.7	115.4	110.3	108.6	106.9	106.3
77.5°	121.1	114.9	109.2	104.6	98.4	92.7	91.0	89.8	89.3	88.1	88.1
80°	90.4	84.7	80.7	75.1	71.6	71.6	71.6	70.5	71.1	71.1	71.1
82.5°	61.4	56.3	54.6	53.4	53.4	54.0	54.0	54.6	54.0	55.2	54.6
85°	34.7	35.3	36.4	35.8	36.4	36.4	37.5	37.0	37.5	36.4	37.5
87.5°	15.9	17.6	18.2	18.8	19.3	18.8	19.3	19.3	19.9	19.9	19.9
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: P242592

CATALOG NUMBER: S123RDR-S1000D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1328.2	1328.2	1328.2	1328.2
2.5°	1249.8	1249.2	1249.8	1247.5
5°	1177.5	1177.0	1175.3	1170.2
7.5°	1112.2	1111.0	1106.5	1107.6
10°	1055.3	1055.9	1049.0	1045.1
12.5°	1000.1	996.7	991.6	987.1
15°	953.0	947.3	933.6	934.8
17.5°	894.4	889.8	889.3	881.3
20°	844.4	841.5	842.6	834.7
22.5°	805.1	802.3	796.0	794.9
25°	767.0	762.5	757.9	760.8
27.5°	728.4	724.9	719.8	719.8
30°	692.0	688.6	686.3	683.4
32.5°	655.0	655.0	650.5	650.5
35°	623.7	620.3	619.2	619.8
37.5°	593.6	589.1	586.8	584.5
40°	560.6	556.1	554.9	553.8
42.5°	523.7	522.5	522.0	519.7
45°	490.7	490.1	486.7	487.8
47.5°	455.4	452.6	450.9	452.6
50°	419.0	417.9	412.8	413.9
52.5°	382.7	377.5	376.4	375.3
55°	341.7	336.6	334.3	333.2
57.5°	301.4	299.6	297.4	299.1
60°	266.7	266.7	266.7	266.1
62.5°	239.9	238.2	237.7	238.8
65°	212.7	212.1	209.8	209.2
67.5°	187.6	185.4	185.4	184.2
70°	158.6	157.5	154.1	154.7
72.5°	127.4	126.2	126.2	125.1
75°	105.8	105.2	104.6	106.9
77.5°	88.1	88.1	88.7	87.6
80°	71.1	71.1	70.5	70.5
82.5°	53.4	54.0	54.6	53.4
85°	37.5	37.0	38.1	37.5
87.5°	21.0	19.9	19.9	20.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)