

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: P243452

Luminaire Tested: **S123RDR-H1000D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243452
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-H1000D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3239.6 lumens
Efficiency: N/A
Efficacy: 102.8 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

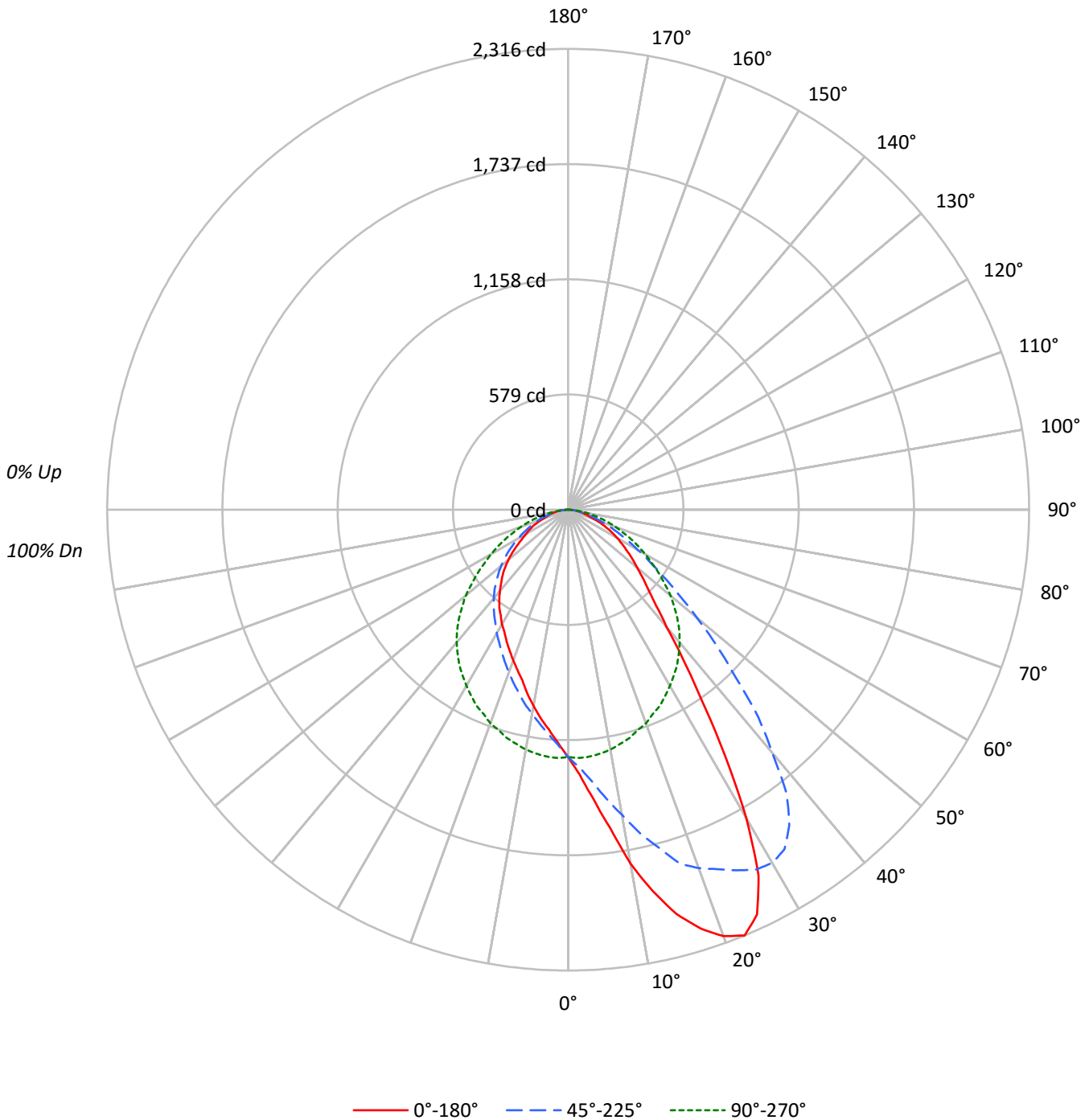
Input Watts (W): 31.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P243452

CATALOG NUMBER: S123RDR-H1000D940-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot





TEST NUMBER: P243452

CATALOG NUMBER: S123RDR-H1000D940-X4F0-XX-UDD-A-W

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	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°	15070	15070	15070
5°	17767	15155	13495
10°	22241	15065	12317
15°	26394	14916	11156
20°	29416	14736	10388
25°	30025	14554	9779
30°	25021	14306	9302
35°	17286	14108	8912
40°	12147	13787	8443
45°	9754	13297	7988
50°	8503	12665	7390
55°	7625	11720	6581
60°	6897	10827	5961
65°	6035	9978	5573
70°	4869	8981	4717
75°	4224	7821	4627
80°	3895	6673	4649
85°	3435	5382	4033



TEST NUMBER: P243452

CATALOG NUMBER: S123RDR-H1000D940-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	121.9	3.8
10°-20°	384.0	11.9
20°-30°	615.2	19.0
30°-40°	667.9	20.6
40°-50°	572.2	17.7
50°-60°	433.8	13.4
60°-70°	277.2	8.6
70°-80°	132.5	4.1
80°-90°	34.8	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°	1121.2	34.6
0°-40°	1789.1	55.2
0°-60°	2795.1	86.3
0°-90°	3239.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3239.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1243	1243	1243	1243	1243	
5°	1460	1370	1246	1132	1109	150
15°	2103	1758	1189	954	889	596
25°	2245	2000	1088	790	731	996
35°	1168	1936	953	647	602	750
45°	569	1185	776	512	466	450
55°	361	581	555	367	311	325
65°	210	280	348	222	194	209
75°	90	110	167	105	99	97
85°	25	26	39	31	29	28
90°	0	0	0	0	0	



TEST NUMBER: P243452

CATALOG NUMBER: S123RDR-H1000D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3
2.5°	1332.4	1334.0	1331.3	1330.8	1330.3	1321.7	1319.0	1314.7	1299.7	1295.9	1293.2
5°	1460.2	1455.9	1460.7	1451.6	1441.4	1435.5	1425.8	1404.4	1385.6	1370.5	1360.9
7.5°	1611.6	1613.2	1608.4	1599.8	1579.4	1570.8	1544.5	1518.7	1494.0	1462.9	1439.8
10°	1807.0	1794.1	1796.8	1769.9	1748.5	1722.7	1686.7	1645.4	1601.9	1557.9	1525.1
12.5°	1962.7	1971.8	1965.4	1952.5	1911.1	1885.9	1853.2	1793.0	1724.3	1665.3	1615.3
15°	2103.3	2091.0	2092.6	2061.4	2046.4	2023.3	1969.1	1909.5	1865.0	1758.1	1699.1
17.5°	2206.4	2205.3	2203.7	2177.4	2159.1	2110.8	2055.5	1994.3	1938.5	1864.4	1790.3
20°	2280.5	2288.5	2286.4	2264.9	2232.7	2186.0	2152.7	2076.5	1984.7	1917.0	1826.3
22.5°	2315.9	2316.4	2317.5	2307.3	2285.8	2255.8	2208.5	2147.3	2065.7	1955.2	1854.2
25°	2245.0	2247.7	2261.7	2270.3	2276.2	2262.8	2238.1	2182.8	2112.4	1999.7	1895.0
27.5°	2071.1	2079.7	2095.3	2146.8	2167.7	2196.7	2206.9	2184.9	2132.8	2038.9	1919.7
30°	1787.7	1811.8	1826.8	1885.4	1967.5	2044.8	2081.3	2117.3	2112.4	2050.2	1929.4
32.5°	1463.4	1479.0	1522.5	1585.3	1650.2	1763.5	1890.2	1977.2	2026.0	2022.8	1937.4
35°	1168.2	1190.7	1227.7	1275.5	1365.2	1482.7	1626.1	1763.0	1885.4	1936.4	1905.8
37.5°	948.0	950.2	985.1	1052.7	1108.6	1212.2	1341.5	1510.7	1671.2	1804.3	1833.8
40°	767.7	782.7	801.0	843.4	909.4	1008.7	1094.6	1261.0	1427.4	1594.4	1713.6
42.5°	653.9	653.9	674.3	701.1	745.1	804.7	907.3	1058.1	1207.9	1412.9	1547.2
45°	569.0	574.4	583.5	600.7	631.9	678.0	757.5	860.0	1013.0	1185.3	1387.2
47.5°	507.8	507.3	515.4	525.6	549.7	584.6	631.3	714.5	827.8	1013.5	1191.8
50°	450.9	453.1	459.0	467.6	483.7	508.4	537.9	600.7	696.3	843.4	1030.2
52.5°	406.9	406.4	411.2	416.6	428.9	442.9	469.2	515.9	581.9	699.0	854.1
55°	360.8	362.9	368.8	372.0	382.2	391.4	413.4	439.7	492.8	580.9	722.0
57.5°	321.0	323.7	326.9	330.2	337.1	346.3	364.5	380.6	419.3	482.6	595.3
60°	284.5	283.4	287.2	292.6	296.3	304.4	314.6	331.2	358.1	403.2	485.8
62.5°	248.0	248.6	249.1	252.3	259.3	266.3	275.4	287.7	303.8	337.1	395.6
65°	210.4	211.0	212.0	215.3	222.2	226.5	236.2	246.9	259.8	279.7	320.5
67.5°	177.2	179.3	179.3	182.0	184.7	189.0	195.9	204.0	214.7	229.2	255.5
70°	137.4	136.9	139.6	144.9	147.6	155.1	160.0	165.3	175.0	184.1	206.7
72.5°	110.6	110.6	110.6	112.7	113.3	114.9	118.1	129.4	136.9	146.0	158.4
75°	90.2	90.7	90.7	91.3	91.8	93.4	94.5	97.7	99.9	109.5	117.0
77.5°	71.9	72.5	72.5	73.0	73.5	74.1	76.2	76.2	77.8	80.0	83.2
80°	55.8	55.3	55.3	55.8	55.8	57.4	57.4	58.5	59.1	60.1	61.7
82.5°	39.7	39.2	39.7	39.2	39.7	40.3	41.3	40.8	41.9	42.9	43.5
85°	24.7	25.2	25.2	26.3	25.8	25.2	25.8	25.8	25.8	25.8	26.8
87.5°	10.7	11.8	11.8	11.3	11.8	11.8	10.7	11.8	11.8	11.8	12.3
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: P243452

CATALOG NUMBER: S123RDR-H1000D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3
2.5°	1291.6	1289.5	1281.4	1273.9	1262.6	1257.8	1251.4	1248.7	1240.1	1228.3	1222.9
5°	1351.7	1335.6	1320.1	1301.3	1285.7	1267.5	1257.3	1245.5	1227.2	1210.6	1198.8
7.5°	1415.6	1392.0	1363.0	1331.9	1304.0	1277.7	1255.1	1236.3	1212.7	1189.6	1171.4
10°	1486.0	1445.7	1399.0	1359.3	1319.0	1280.9	1252.4	1224.0	1193.4	1164.4	1142.4
12.5°	1561.7	1504.7	1448.4	1388.8	1328.7	1284.6	1242.2	1205.7	1171.4	1140.8	1114.5
15°	1640.0	1562.2	1490.3	1423.1	1339.4	1280.4	1233.6	1188.6	1145.6	1108.0	1082.3
17.5°	1695.9	1606.7	1516.0	1421.0	1349.1	1276.1	1218.1	1161.2	1121.4	1082.8	1047.9
20°	1747.4	1646.5	1538.6	1450.0	1349.6	1260.5	1197.1	1142.4	1087.1	1045.8	1016.2
22.5°	1769.4	1678.1	1569.2	1446.2	1345.8	1254.6	1173.0	1111.2	1061.9	1016.8	978.1
25°	1773.7	1671.7	1560.0	1441.4	1331.3	1232.6	1149.9	1088.2	1023.7	977.0	947.0
27.5°	1792.5	1652.9	1543.4	1425.3	1313.6	1210.6	1123.6	1054.9	994.8	944.8	906.2
30°	1797.3	1644.9	1508.0	1395.2	1280.4	1179.4	1091.4	1022.1	956.6	905.6	870.7
32.5°	1799.5	1634.1	1470.9	1347.5	1237.9	1142.9	1062.4	987.2	925.0	871.3	835.3
35°	1792.0	1619.1	1426.4	1293.2	1188.0	1094.6	1020.0	953.4	884.2	833.7	795.6
37.5°	1762.4	1595.5	1401.1	1229.9	1129.5	1041.5	978.1	912.6	848.7	794.0	754.8
40°	1706.6	1561.1	1353.9	1176.7	1062.9	984.0	925.0	871.3	806.9	754.3	715.6
42.5°	1617.5	1514.4	1310.4	1116.6	996.9	922.3	872.9	826.7	768.7	718.8	676.4
45°	1485.4	1448.9	1252.4	1055.4	925.0	854.6	811.7	775.7	723.1	677.5	638.3
47.5°	1342.6	1350.7	1193.9	993.1	859.5	792.4	754.8	723.1	683.4	634.5	598.6
50°	1177.8	1221.8	1111.8	930.3	794.0	727.9	690.9	671.6	634.5	593.7	559.9
52.5°	1027.0	1096.8	1028.6	861.6	729.6	664.6	630.2	610.9	586.2	552.4	518.0
55°	870.7	959.3	909.9	787.5	664.1	598.6	569.6	554.6	534.2	507.8	476.7
57.5°	741.4	835.9	804.7	709.7	600.2	541.1	515.4	498.2	485.8	461.7	436.4
60°	614.7	702.2	689.8	620.0	536.8	480.5	460.6	446.6	436.4	418.7	394.0
62.5°	496.0	580.9	588.4	533.6	475.1	424.1	405.8	396.2	388.1	374.2	351.6
65°	393.5	468.1	483.7	441.8	410.1	371.5	353.8	347.9	342.0	325.9	308.7
67.5°	308.1	366.7	387.1	363.4	340.9	318.3	304.4	296.3	292.0	282.4	270.6
70°	235.7	286.1	303.3	293.1	278.1	269.5	258.8	253.4	249.1	236.7	230.3
72.5°	176.6	211.0	232.4	229.2	226.0	220.1	213.7	212.0	205.6	197.6	191.6
75°	129.4	149.2	168.6	175.5	174.5	176.6	169.6	167.0	163.2	157.3	152.5
77.5°	92.9	104.7	118.1	126.7	131.0	131.5	131.5	129.9	127.2	122.9	119.2
80°	64.4	67.1	79.5	87.5	91.8	95.0	95.0	95.6	92.9	91.3	88.6
82.5°	44.6	46.2	48.9	55.3	60.7	64.4	65.0	64.4	63.3	62.8	59.1
85°	27.9	27.4	27.4	29.0	33.3	37.0	37.6	38.7	38.1	37.6	33.8
87.5°	11.8	11.8	12.3	11.8	13.4	14.0	15.0	17.7	17.2	14.5	13.4
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: P243452

CATALOG NUMBER: S123RDR-H1000D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3	1243.3
2.5°	1219.7	1212.7	1206.3	1199.3	1190.7	1182.6	1181.6	1180.5	1183.2	1177.8	1175.7
5°	1189.6	1176.2	1166.0	1153.1	1144.0	1132.2	1125.7	1124.1	1123.6	1120.4	1116.1
7.5°	1156.9	1142.4	1127.9	1113.4	1098.4	1086.0	1079.0	1075.3	1072.1	1066.7	1062.4
10°	1126.3	1108.0	1092.5	1072.6	1056.5	1040.4	1033.9	1028.6	1025.4	1017.8	1011.9
12.5°	1091.9	1068.8	1051.7	1030.2	1015.7	1001.7	991.5	981.3	973.8	962.5	957.7
15°	1061.9	1037.7	1008.7	995.8	975.4	954.5	943.2	943.2	927.6	918.5	912.6
17.5°	1021.6	1000.7	980.3	954.0	925.0	912.6	899.7	888.5	877.7	875.0	864.3
20°	986.2	961.5	940.5	912.1	885.8	871.3	856.3	843.9	835.9	828.3	822.4
22.5°	951.3	926.6	894.4	866.5	848.7	829.4	813.3	802.6	795.6	784.3	778.9
25°	914.8	885.2	856.3	828.9	806.9	790.2	773.6	767.7	755.3	749.4	741.9
27.5°	878.3	842.8	815.5	791.8	767.1	751.0	739.8	729.0	718.3	715.1	710.8
30°	837.5	804.7	778.4	755.3	731.7	717.7	704.3	694.7	685.5	678.6	673.7
32.5°	796.7	769.3	744.1	717.2	695.7	680.7	669.4	660.8	656.5	644.7	640.4
35°	759.1	731.2	704.3	679.1	661.9	647.4	637.2	629.2	620.0	612.5	608.2
37.5°	720.4	695.2	667.8	646.3	627.0	615.2	603.9	593.2	586.2	581.9	576.6
40°	682.9	656.0	635.1	611.5	594.3	580.9	569.0	561.0	552.4	548.6	541.7
42.5°	647.4	621.7	597.5	576.0	560.5	547.6	536.3	527.2	520.2	513.2	509.5
45°	606.6	584.1	562.1	540.6	526.1	512.1	499.8	491.7	482.1	476.2	474.0
47.5°	572.3	548.6	525.0	505.2	490.1	475.1	464.9	455.2	447.2	441.3	438.1
50°	531.5	509.5	490.1	470.3	455.8	439.7	427.3	418.2	409.1	404.8	399.4
52.5°	496.6	475.1	451.5	433.8	417.1	403.2	391.9	384.4	376.3	369.9	366.1
55°	453.1	432.2	413.4	394.6	377.9	366.7	357.5	344.6	337.7	331.2	321.0
57.5°	415.0	395.1	375.2	357.0	341.4	328.0	316.7	308.1	299.0	294.2	287.2
60°	374.7	353.8	335.5	321.6	304.4	289.9	282.4	272.2	264.7	257.1	255.0
62.5°	335.0	315.7	297.4	282.9	267.3	256.1	246.4	241.6	234.1	228.2	226.0
65°	293.6	277.5	260.4	244.3	234.6	221.7	216.3	208.3	204.0	201.3	200.8
67.5°	252.8	238.4	222.8	210.4	201.3	192.7	186.3	183.1	178.8	175.5	172.9
70°	215.8	201.8	188.4	178.2	171.3	164.8	160.5	154.6	150.3	146.0	140.1
72.5°	179.3	168.0	156.8	148.7	141.7	138.0	132.1	122.9	118.6	117.6	117.0
75°	145.5	133.1	125.1	120.8	114.3	105.2	101.5	100.4	99.9	98.8	98.8
77.5°	112.2	104.7	99.3	90.2	87.0	86.4	83.7	83.2	82.1	82.7	82.7
80°	81.6	77.3	70.9	68.2	67.1	67.6	66.6	67.1	66.0	66.6	65.5
82.5°	54.2	50.5	51.5	49.9	49.9	51.0	50.5	48.9	48.9	48.3	48.3
85°	32.2	31.7	32.7	32.7	32.2	30.6	31.7	31.1	29.5	30.1	30.1
87.5°	14.0	14.0	14.0	13.4	14.0	13.4	13.4	13.4	11.8	11.8	11.8
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: P243452

CATALOG NUMBER: S123RDR-H1000D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1243.3	1243.3	1243.3	1243.3
2.5°	1176.7	1175.7	1174.1	1172.4
5°	1116.1	1111.2	1110.7	1109.1
7.5°	1059.2	1057.0	1053.3	1057.6
10°	1007.1	1008.7	1005.0	1000.7
12.5°	952.9	949.7	943.8	947.0
15°	905.1	899.7	896.5	889.0
17.5°	855.2	850.9	850.9	846.1
20°	811.7	807.4	808.5	805.3
22.5°	775.2	772.0	767.1	767.7
25°	740.8	736.0	730.6	731.2
27.5°	702.7	698.4	697.3	693.6
30°	668.9	665.1	664.6	664.6
32.5°	636.1	634.5	631.9	630.2
35°	607.7	605.5	601.3	602.3
37.5°	572.3	570.1	569.6	569.0
40°	539.0	537.4	533.1	533.6
42.5°	505.7	503.0	500.3	499.3
45°	469.7	469.2	464.9	466.0
47.5°	435.4	434.3	432.2	429.5
50°	397.3	396.7	395.1	391.9
52.5°	360.2	358.6	355.4	352.2
55°	318.3	313.5	314.0	311.4
57.5°	284.0	281.8	277.5	275.9
60°	250.7	248.6	248.0	245.9
62.5°	222.8	220.6	219.0	219.0
65°	197.6	194.9	194.3	194.3
67.5°	169.6	167.0	166.4	165.3
70°	134.7	134.2	133.1	133.1
72.5°	116.0	115.4	116.0	113.8
75°	98.8	98.2	98.2	98.8
77.5°	82.1	82.1	81.6	81.6
80°	65.0	65.5	65.0	66.6
82.5°	48.9	47.8	48.3	47.2
85°	30.1	30.1	29.0	29.0
87.5°	11.8	11.8	11.8	11.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)