

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: P243099

Luminaire Tested: **S121RDR-H1025D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243099
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-67)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121RDR-H1025D930-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2681.0 lumens
Efficiency: N/A
Efficacy: 71.1 lumens/watt
Spacing Criteria (0/90/45): 0.89 / 1.21 / 1.07
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

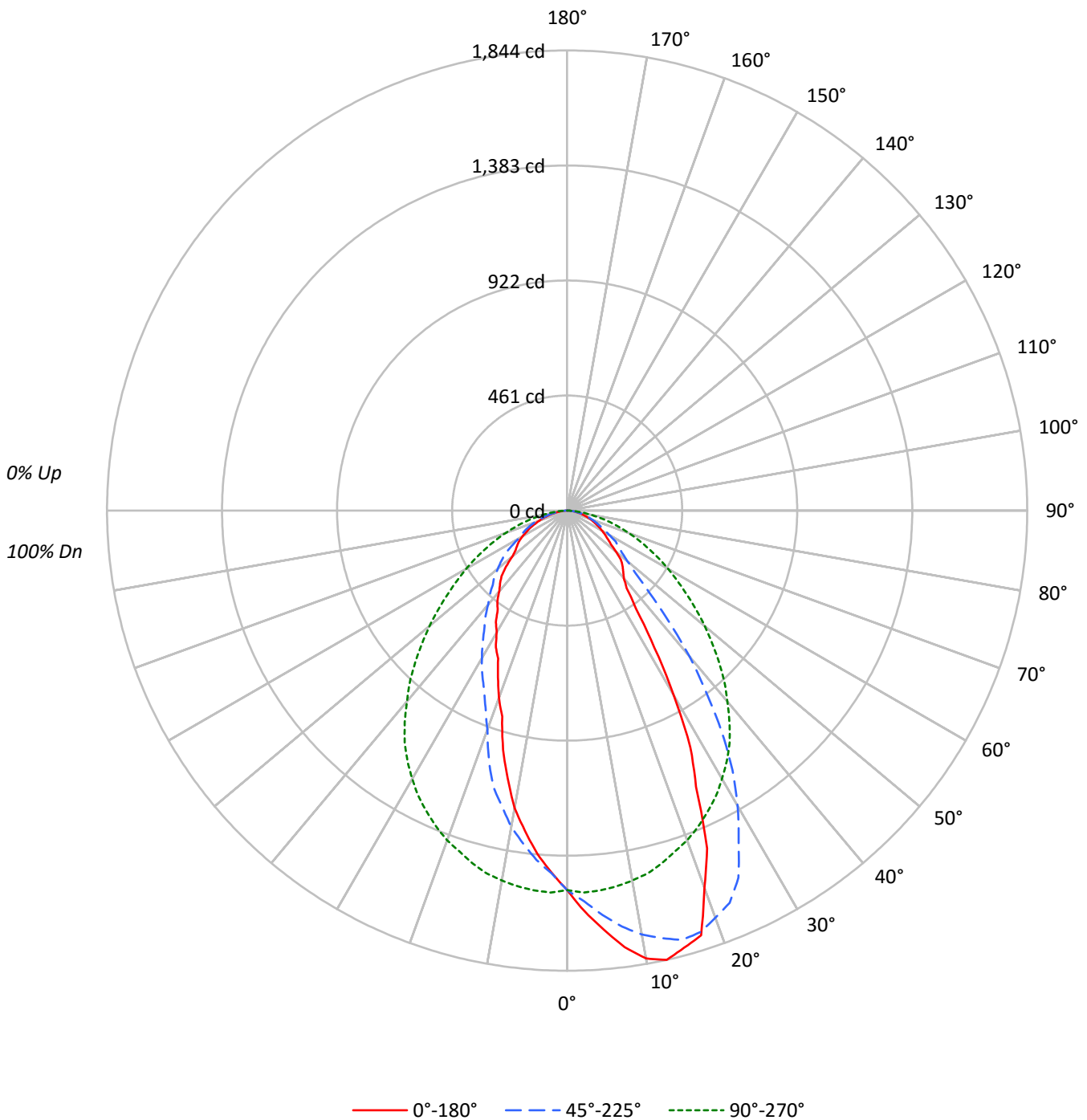
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P243099

CATALOG NUMBER: S121RDR-H1025D930-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	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89				87	
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78				76	
3	94	85	78	73	92	84	77	72	81	75	71	78	73	70	76	72	68				66	
4	87	77	69	63	85	76	69	63	73	67	62	71	66	61	69	64	61				59	
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54				52	
6	76	64	56	50	74	63	55	50	61	55	50	60	54	49	58	53	49				47	
7	71	59	51	45	69	58	50	45	56	50	45	55	49	44	54	48	44				42	
8	66	54	46	41	65	53	46	41	52	46	41	51	45	41	50	44	40				39	
9	62	50	43	38	61	50	42	38	49	42	37	48	42	37	47	41	37				35	
10	59	47	39	35	58	46	39	35	45	39	34	44	38	34	44	38	34				33	

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	45061	45061	45061
5°	50144	45420	41036
10°	54830	45290	36438
15°	55620	44908	30433
20°	50699	44336	25168
25°	39931	43530	21410
30°	29194	42476	19307
35°	17424	41069	17547
40°	13661	38636	16369
45°	13166	36066	15571
50°	11736	33175	13216
55°	10249	30184	12620
60°	9582	27627	12231
65°	8925	25127	11337
70°	8447	22654	10335
75°	7750	20149	9193
80°	7047	16346	8020
85°	6629	12477	5847



TEST NUMBER: P243099

CATALOG NUMBER: S121RDR-H1025D930-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	145.2	5.4
10°-20°	405.0	15.1
20°-30°	538.5	20.1
30°-40°	513.7	19.2
40°-50°	426.3	15.9
50°-60°	317.0	11.8
60°-70°	205.3	7.7
70°-80°	104.5	3.9
80°-90°	25.6	1.0
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°	1088.7	40.6
0°-40°	1602.4	59.8
0°-60°	2345.7	87.5
0°-90°	2681.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2681.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1521	1521	1521	1521	1521	
5°	1686	1627	1527	1406	1380	165
15°	1813	1781	1464	1145	992	505
25°	1221	1623	1332	788	655	567
35°	482	1079	1135	579	485	328
45°	314	465	861	422	372	240
55°	198	252	584	304	244	180
65°	127	144	358	184	162	127
75°	68	74	176	91	80	72
85°	20	19	37	20	17	21
90°	0	0	0	0	0	



TEST NUMBER: P243099

CATALOG NUMBER: S121RDR-H1025D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8
2.5°	1607.9	1603.9	1608.5	1606.8	1599.3	1601.0	1591.9	1586.1	1572.4	1567.2	1567.2
5°	1685.9	1691.7	1688.2	1689.4	1681.9	1677.3	1667.6	1656.7	1639.5	1626.9	1622.3
7.5°	1763.9	1765.6	1767.3	1762.8	1754.2	1746.1	1732.4	1716.3	1697.4	1681.3	1668.7
10°	1822.4	1826.4	1824.1	1817.2	1810.9	1798.9	1784.0	1766.8	1746.1	1724.9	1709.4
12.5°	1844.2	1847.6	1852.8	1848.8	1848.2	1842.5	1827.6	1806.3	1781.1	1754.7	1737.0
15°	1813.2	1810.9	1824.7	1821.2	1820.1	1817.8	1821.8	1817.2	1804.0	1781.1	1759.3
17.5°	1784.5	1783.4	1797.2	1800.6	1795.4	1788.0	1783.4	1777.7	1771.4	1771.9	1769.1
20°	1607.9	1642.9	1649.8	1668.1	1707.1	1732.9	1758.7	1757.6	1739.2	1736.4	1735.2
22.5°	1465.7	1478.9	1472.6	1502.4	1523.6	1570.1	1615.4	1672.7	1711.1	1701.4	1695.1
25°	1221.4	1262.7	1281.6	1318.9	1372.8	1431.9	1457.7	1518.5	1577.5	1623.4	1658.4
27.5°	1070.0	1079.2	1091.3	1129.7	1149.7	1203.7	1300.0	1382.6	1437.6	1487.5	1579.8
30°	853.3	857.3	899.2	920.4	979.4	1032.2	1115.9	1182.4	1293.1	1367.1	1438.2
32.5°	651.4	648.0	693.9	718.5	777.0	848.1	941.6	1003.5	1111.9	1232.9	1317.8
35°	481.7	481.1	505.8	523.0	587.2	641.7	760.4	841.2	959.9	1078.6	1188.2
37.5°	392.2	391.7	396.8	411.7	438.7	500.0	557.4	677.2	793.1	910.1	1047.1
40°	353.2	356.1	357.3	364.1	373.3	391.7	426.6	510.4	623.9	763.2	900.9
42.5°	332.6	332.6	333.7	335.5	340.1	345.2	366.4	398.5	489.7	601.0	755.2
45°	314.2	314.8	316.0	317.1	316.0	318.8	328.6	341.8	377.3	465.1	614.2
47.5°	292.5	291.9	294.7	296.5	298.8	302.2	302.8	309.7	325.1	371.0	479.4
50°	254.6	255.2	258.0	264.9	272.4	278.7	282.7	287.3	292.5	314.2	371.6
52.5°	220.2	220.8	222.5	227.7	234.5	242.6	255.2	265.5	269.5	276.4	308.5
55°	198.4	198.4	200.7	203.6	205.3	211.0	219.6	231.1	246.0	251.7	265.5
57.5°	180.1	180.1	181.2	181.2	183.5	186.4	192.1	197.8	210.5	228.8	237.4
60°	161.7	161.7	162.9	162.9	165.7	166.9	170.9	174.3	181.2	193.8	211.0
62.5°	144.5	143.4	144.5	145.1	146.8	148.5	151.4	155.4	159.4	166.9	179.5
65°	127.3	126.7	127.9	129.0	130.2	132.5	134.2	137.1	140.5	144.5	150.8
67.5°	112.4	111.8	112.4	114.1	113.5	114.7	117.6	118.7	122.1	126.2	131.3
70°	97.5	96.3	97.5	97.5	98.1	99.8	99.8	102.6	105.5	107.8	112.4
72.5°	81.4	82.0	81.4	82.0	83.1	83.7	84.9	86.6	88.3	90.6	93.5
75°	67.7	67.7	68.2	68.8	70.0	70.0	70.5	71.7	72.8	74.0	77.4
77.5°	53.9	54.5	55.1	55.6	55.6	56.2	56.8	57.3	59.1	59.6	61.4
80°	41.3	41.9	41.9	41.9	43.0	41.9	43.0	44.2	44.2	44.7	45.9
82.5°	29.8	30.4	29.8	30.4	31.0	31.0	30.4	31.0	31.0	32.1	32.1
85°	19.5	18.4	18.4	18.4	18.4	18.4	18.9	19.5	18.9	18.9	19.5
87.5°	8.0	8.0	8.0	8.0	8.6	8.0	8.6	8.6	8.6	8.0	8.6
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: P243099

CATALOG NUMBER: S121RDR-H1025D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8
2.5°	1570.1	1565.5	1561.5	1554.6	1546.0	1533.4	1531.7	1532.2	1516.8	1501.8	1499.5
5°	1612.5	1605.1	1592.4	1577.5	1563.8	1542.6	1533.4	1527.1	1503.6	1483.5	1475.5
7.5°	1657.8	1640.0	1622.8	1599.3	1576.4	1548.9	1531.7	1518.5	1487.5	1461.1	1447.4
10°	1693.4	1671.6	1646.9	1617.1	1585.6	1551.7	1525.9	1505.3	1468.0	1435.3	1418.1
12.5°	1718.6	1693.9	1664.7	1629.1	1593.0	1548.3	1516.8	1489.2	1443.9	1404.9	1384.3
15°	1731.8	1705.4	1669.3	1630.3	1593.0	1546.0	1504.1	1464.0	1419.3	1370.5	1344.7
17.5°	1743.8	1709.4	1668.7	1624.0	1586.1	1536.8	1485.2	1433.0	1382.6	1336.7	1294.8
20°	1735.2	1706.0	1660.7	1614.2	1571.8	1514.5	1460.0	1406.1	1343.0	1289.7	1247.8
22.5°	1695.1	1689.9	1641.2	1591.3	1542.6	1487.5	1424.4	1371.1	1303.4	1240.4	1189.9
25°	1648.1	1641.8	1615.4	1562.1	1507.0	1449.7	1392.9	1331.5	1253.5	1188.2	1130.3
27.5°	1608.5	1594.2	1575.2	1525.4	1466.3	1408.9	1350.5	1290.8	1207.7	1134.8	1068.9
30°	1528.2	1542.0	1520.8	1486.4	1418.1	1362.5	1306.3	1241.5	1158.9	1075.2	1007.5
32.5°	1400.9	1484.1	1462.8	1435.3	1368.2	1307.4	1254.1	1190.5	1099.3	1016.7	946.8
35°	1288.5	1360.2	1408.4	1375.1	1316.0	1245.5	1191.0	1135.4	1040.2	955.9	888.8
37.5°	1179.6	1255.8	1336.1	1305.7	1257.0	1181.3	1123.9	1068.9	980.6	895.7	828.6
40°	1036.8	1148.0	1225.4	1237.5	1187.6	1111.3	1055.7	998.9	920.9	836.7	765.0
42.5°	899.7	1042.5	1105.0	1167.0	1115.9	1044.2	982.3	934.1	859.0	785.0	707.1
45°	756.4	918.7	1011.0	1058.6	1040.2	974.8	907.2	860.7	797.7	728.8	654.9
47.5°	631.9	786.2	918.1	945.0	962.8	898.6	835.5	788.5	734.0	677.2	606.7
50°	501.2	661.2	802.2	851.0	884.8	826.3	760.4	719.7	673.8	622.8	560.3
52.5°	389.9	539.6	687.6	770.7	782.2	751.8	691.0	650.9	614.2	568.3	511.5
55°	309.7	425.5	573.4	670.4	681.2	673.8	619.3	584.3	557.4	519.0	471.4
57.5°	256.9	330.9	464.5	576.3	592.4	599.2	554.5	523.0	498.9	468.5	425.5
60°	221.9	260.9	363.0	472.5	516.7	528.7	489.1	466.2	446.1	418.6	378.5
62.5°	196.1	213.9	277.5	383.1	439.8	450.2	430.1	412.9	396.2	369.9	334.3
65°	163.4	182.4	213.9	295.9	365.9	371.0	375.0	358.4	345.2	323.4	291.9
67.5°	137.1	152.0	172.6	227.1	293.6	308.5	318.8	311.4	298.8	277.0	250.0
70°	116.4	125.0	139.9	170.3	224.2	256.3	267.2	261.5	255.2	231.7	208.7
72.5°	96.9	103.8	112.4	130.7	169.2	203.6	219.6	216.8	209.9	192.1	173.2
75°	80.3	83.1	90.0	100.4	122.7	154.8	173.8	176.0	168.0	151.4	136.5
77.5°	63.1	65.9	70.0	76.3	90.6	112.4	127.9	133.6	128.5	116.4	101.5
80°	48.2	49.9	52.8	55.6	61.4	76.3	92.3	95.8	92.9	83.1	74.0
82.5°	32.1	33.3	35.6	37.8	40.7	47.6	61.4	63.7	63.1	54.5	48.2
85°	19.5	19.5	20.1	21.8	22.9	25.8	33.3	36.7	35.0	29.2	26.4
87.5°	8.0	8.6	8.0	8.0	8.0	8.6	10.9	14.9	11.5	8.6	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: P243099

CATALOG NUMBER: S121RDR-H1025D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8	1520.8
2.5°	1493.2	1490.9	1482.3	1474.3	1465.1	1454.2	1454.8	1456.5	1452.5	1451.4	1455.4
5°	1464.0	1456.0	1442.8	1429.6	1419.3	1405.5	1397.5	1401.5	1398.6	1393.5	1390.0
7.5°	1433.0	1421.6	1402.6	1386.0	1372.2	1346.4	1340.7	1333.8	1328.1	1316.6	1314.3
10°	1396.3	1379.7	1355.6	1332.1	1306.9	1286.8	1267.9	1259.8	1244.4	1234.0	1231.2
12.5°	1358.5	1331.0	1304.0	1269.6	1240.9	1211.7	1195.1	1183.6	1168.1	1142.9	1130.8
15°	1319.5	1277.6	1241.5	1203.7	1184.2	1144.6	1113.0	1077.5	1058.6	1016.1	991.5
17.5°	1267.3	1219.1	1170.4	1139.4	1098.7	1043.7	990.9	972.6	943.9	916.4	888.8
20°	1196.8	1152.6	1106.2	1059.7	997.8	934.1	914.1	882.5	851.0	834.4	820.0
22.5°	1132.0	1084.4	1029.3	968.0	904.3	854.4	828.0	805.1	785.6	770.7	754.1
25°	1070.6	1021.3	942.7	880.2	824.6	787.9	774.7	744.9	724.3	713.4	699.0
27.5°	1002.9	935.3	872.2	807.4	758.1	737.4	707.1	683.5	661.8	640.5	635.4
30°	938.7	863.6	801.1	748.3	712.2	683.5	652.6	625.1	610.7	602.7	589.5
32.5°	875.1	798.8	740.3	699.0	660.0	629.6	600.4	586.1	564.3	546.5	535.0
35°	806.8	740.3	693.9	645.7	608.4	578.6	563.7	531.0	519.0	513.8	501.8
37.5°	746.6	687.6	640.5	603.8	563.1	539.0	509.8	502.3	486.3	472.5	468.5
40°	696.7	641.1	597.0	549.4	524.1	492.6	478.2	458.2	452.4	447.3	438.1
42.5°	642.3	594.7	544.2	512.1	474.8	460.5	438.1	432.4	418.6	413.5	410.0
45°	595.8	551.7	503.5	464.5	443.3	422.1	413.5	399.1	392.8	386.5	380.2
47.5°	550.5	504.6	466.2	429.5	406.0	396.2	380.8	370.4	363.6	357.3	350.9
50°	508.6	462.2	419.2	392.8	376.2	362.4	352.7	344.1	334.3	320.6	306.2
52.5°	463.3	421.5	386.5	360.7	345.8	332.6	324.0	309.1	290.2	275.3	268.4
55°	418.0	378.5	348.1	327.4	317.1	304.5	285.0	263.2	251.2	248.9	247.2
57.5°	379.6	342.3	314.2	298.2	286.1	263.8	243.1	235.1	231.7	230.5	229.4
60°	336.6	303.4	283.3	266.1	246.0	224.8	218.5	217.3	213.9	212.2	211.0
62.5°	297.0	268.4	250.0	229.4	208.2	204.1	199.6	196.7	195.0	191.0	189.2
65°	258.6	235.7	215.6	193.8	186.4	183.5	179.5	175.5	170.9	168.0	165.7
67.5°	221.9	199.6	178.3	170.3	166.3	161.7	156.5	150.8	148.5	144.5	143.9
70°	185.8	165.2	153.7	148.5	141.1	137.1	131.3	129.0	125.0	123.3	121.6
72.5°	151.4	136.5	131.9	124.4	119.3	113.0	110.1	107.8	105.5	102.6	102.6
75°	118.1	114.1	105.5	99.8	94.6	91.2	90.0	86.0	85.4	83.7	82.6
77.5°	94.0	86.0	83.1	76.8	73.4	71.7	70.5	68.2	65.9	65.4	64.8
80°	66.5	62.5	59.1	56.2	53.3	52.2	51.0	50.5	49.3	48.2	47.6
82.5°	43.6	41.3	39.0	37.3	36.7	35.0	33.8	33.3	32.1	32.1	32.1
85°	23.5	22.9	21.8	20.6	19.5	19.5	18.9	18.4	18.4	16.6	16.6
87.5°	7.5	7.5	6.9	6.9	5.7	6.3	5.7	5.7	5.2	5.7	5.7
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: P243099

CATALOG NUMBER: S121RDR-H1025D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1520.8	1520.8	1520.8	1520.8
2.5°	1450.8	1450.8	1448.5	1450.8
5°	1387.7	1382.6	1380.8	1379.7
7.5°	1307.4	1302.9	1298.3	1293.7
10°	1225.4	1218.6	1214.5	1211.1
12.5°	1118.8	1110.2	1094.1	1098.7
15°	987.5	988.0	950.8	992.1
17.5°	880.2	883.1	868.2	865.9
20°	812.0	810.8	805.1	798.2
22.5°	742.0	736.9	734.6	723.7
25°	676.7	667.5	670.4	654.9
27.5°	629.1	621.6	619.3	618.2
30°	581.5	566.0	560.8	564.3
32.5°	533.3	532.2	530.4	531.0
35°	492.6	490.3	485.1	485.1
37.5°	464.5	465.1	462.2	459.9
40°	430.1	427.2	426.6	423.2
42.5°	405.4	399.7	397.4	398.0
45°	376.8	373.3	370.4	371.6
47.5°	342.9	339.5	333.2	331.4
50°	297.0	292.5	289.6	286.7
52.5°	262.6	262.1	260.9	260.3
55°	246.0	244.3	244.3	244.3
57.5°	228.8	227.7	227.1	228.2
60°	209.9	208.7	206.4	206.4
62.5°	186.4	185.2	184.6	182.4
65°	162.9	162.3	161.1	161.7
67.5°	141.1	140.5	140.5	138.8
70°	119.8	119.8	118.1	119.3
72.5°	100.4	99.8	99.8	99.8
75°	81.4	80.9	80.3	80.3
77.5°	64.2	64.2	63.1	63.1
80°	46.4	46.4	45.9	47.0
82.5°	31.0	32.1	31.0	31.0
85°	16.6	17.2	17.2	17.2
87.5°	5.2	4.6	4.6	4.6
90°	0.0	0.0	0.0	0.0

(END OF REPORT)