

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: P242248

Luminaire Tested: **S121RDR-S880D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242248
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-28)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121RDR-S880D940-X4F0-XX-UDD-A-W
Description: DEFINE 1 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: 2740.3 lumens
Efficiency: N/A
Efficacy: 78.7 lumens/watt
Spacing Criteria (0/90/45): 0.96 / 1.23 / 1.1
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

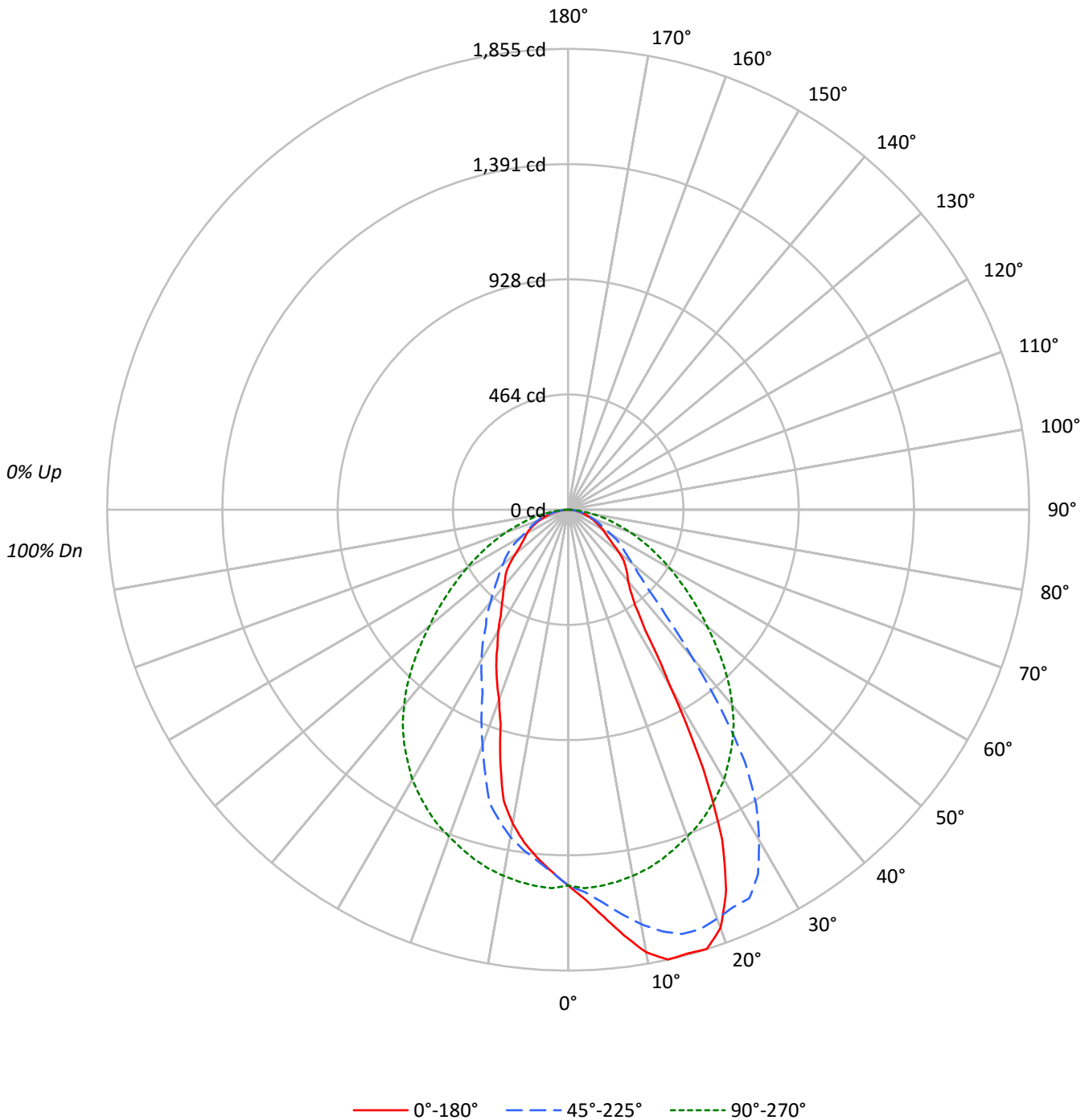
Input Watts (W): 34.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89	87	87	87	87	87	87	87		
2	102	95	89	84	100	93	88	83	90	85	82	87	83	80	84	81	78	76	76	76	76	76	76	76		
3	94	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	68	67	67	67	67	67	67	67		
4	88	77	69	64	85	76	69	63	73	67	62	71	66	61	69	65	61	59	59	59	59	59	59	59		
5	81	70	62	56	79	69	62	56	67	60	55	65	59	55	63	58	54	52	52	52	52	52	52	52		
6	76	64	56	50	74	63	56	50	61	55	50	60	54	49	58	53	49	47	47	47	47	47	47	47		
7	71	59	51	45	69	58	51	45	57	50	45	55	49	45	54	48	44	43	43	43	43	43	43	43		
8	67	54	47	41	65	54	46	41	52	46	41	51	45	41	50	45	40	39	39	39	39	39	39	39		
9	63	50	43	38	61	50	43	38	49	42	37	48	42	37	47	41	37	35	35	35	35	35	35	35		
10	59	47	40	35	58	46	39	35	45	39	35	44	39	34	44	38	34	33	33	33	33	33	33	33		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	44815	44815	44815
5°	48909	45206	41875
10°	54436	45028	38595
15°	56755	44687	32304
20°	56513	44160	25638
25°	47924	43668	22381
30°	28209	42914	19221
35°	16946	41608	16783
40°	14516	39719	15483
45°	13723	37025	14725
50°	12266	33627	12736
55°	10223	30695	11515
60°	9499	27965	11455
65°	8771	25471	11084
70°	8273	22957	10439
75°	7808	20309	9502
80°	6979	16978	8344
85°	6561	13327	6561



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	145.0	5.3
10°-20°	413.1	15.1
20°-30°	564.2	20.6
30°-40°	525.7	19.2
40°-50°	434.6	15.9
50°-60°	320.4	11.7
60°-70°	204.9	7.5
70°-80°	105.4	3.8
80°-90°	27.1	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°	1122.3	41.0
0°-40°	1648.0	60.1
0°-60°	2403.0	87.7
0°-90°	2740.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2740.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1512	1512	1512	1512	1512	
5°	1644	1586	1520	1419	1408	162
15°	1850	1768	1457	1222	1053	521
25°	1466	1725	1336	815	685	636
35°	468	1240	1150	578	464	318
45°	328	462	884	405	351	251
55°	198	265	594	289	223	182
65°	125	144	363	168	158	124
75°	68	74	177	93	83	71
85°	19	20	39	22	19	22
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°	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5
2.5°	1570.5	1569.4	1571.1	1569.9	1568.8	1565.9	1563.7	1556.8	1546.6	1540.9	1546.6
5°	1644.4	1649.0	1647.3	1645.0	1639.9	1635.3	1625.1	1618.8	1600.6	1586.4	1590.4
7.5°	1728.6	1734.3	1726.9	1721.7	1718.9	1705.8	1694.4	1676.8	1656.9	1641.0	1631.9
10°	1809.3	1811.0	1808.7	1804.2	1794.5	1780.3	1763.8	1743.9	1718.9	1694.4	1678.0
12.5°	1854.8	1857.6	1861.1	1853.1	1845.7	1834.3	1817.3	1797.4	1766.7	1738.2	1719.5
15°	1850.2	1852.5	1858.8	1855.9	1852.5	1847.4	1837.7	1821.2	1799.6	1768.4	1741.6
17.5°	1853.7	1855.4	1858.2	1848.0	1842.3	1836.0	1823.5	1812.2	1794.0	1769.5	1749.6
20°	1792.3	1820.1	1816.7	1830.3	1836.0	1835.5	1823.5	1801.9	1776.9	1751.9	1742.8
22.5°	1660.3	1682.5	1685.4	1706.4	1732.5	1753.6	1779.7	1789.4	1770.1	1732.5	1720.0
25°	1465.9	1481.8	1497.7	1527.8	1555.7	1614.3	1667.7	1708.1	1730.3	1725.2	1700.7
27.5°	1178.2	1161.1	1224.2	1258.9	1336.8	1422.1	1497.1	1571.1	1606.3	1653.5	1677.4
30°	824.5	822.8	870.5	930.8	1047.4	1125.8	1266.3	1385.1	1477.8	1535.8	1600.6
32.5°	578.8	587.4	622.6	659.6	723.8	851.8	959.2	1123.0	1281.1	1407.9	1487.5
35°	468.5	469.7	477.6	499.8	539.0	610.1	693.7	852.9	1067.3	1239.6	1358.4
37.5°	410.5	413.9	416.2	428.7	442.9	473.1	526.0	636.3	813.7	1005.9	1212.3
40°	375.3	378.1	380.4	384.4	392.9	407.1	441.8	494.7	597.0	773.9	1003.6
42.5°	351.4	350.3	355.4	357.1	361.6	369.6	384.9	413.4	472.5	592.5	790.4
45°	327.5	329.2	329.2	331.5	335.5	340.0	346.3	363.9	394.0	462.3	617.5
47.5°	302.5	301.9	305.3	307.0	311.0	315.0	319.6	328.7	346.3	386.1	475.9
50°	266.1	267.2	273.5	279.2	284.9	290.0	295.7	301.4	312.7	334.3	389.5
52.5°	227.4	227.4	234.3	238.2	246.2	258.7	268.4	276.9	284.3	295.1	328.1
55°	197.9	198.4	200.7	204.1	209.8	216.1	228.6	243.4	255.9	265.0	283.2
57.5°	177.4	178.0	178.5	181.4	184.2	186.5	193.9	205.3	221.8	238.2	249.1
60°	160.3	159.8	159.8	161.5	163.8	166.6	170.6	175.1	184.2	201.9	221.2
62.5°	141.0	142.2	142.2	143.9	145.6	148.4	150.1	154.7	159.8	167.7	187.6
65°	125.1	126.2	125.1	126.8	127.9	129.6	132.5	134.8	139.3	144.4	152.4
67.5°	109.2	109.7	110.9	111.4	112.6	113.2	115.4	118.3	121.1	124.5	130.8
70°	95.5	95.5	95.5	96.7	97.8	97.8	99.5	100.6	103.5	106.9	110.3
72.5°	80.7	81.3	81.3	80.7	83.0	83.6	84.2	85.3	87.6	90.4	93.3
75°	68.2	67.1	67.1	67.7	69.4	69.4	69.9	70.5	72.2	74.5	76.2
77.5°	53.4	53.4	54.0	54.6	55.2	55.2	56.3	56.3	58.6	59.7	60.8
80°	40.9	42.1	42.6	42.1	42.1	42.6	42.6	43.8	44.4	44.9	46.1
82.5°	30.7	31.3	30.1	30.1	30.7	30.7	31.3	31.3	31.8	32.4	32.4
85°	19.3	19.3	19.9	19.3	19.9	19.3	19.3	20.5	19.9	19.9	20.5
87.5°	9.1	9.7	9.1	9.7	9.1	9.7	9.7	9.7	9.7	9.7	9.1
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°	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5
2.5°	1544.9	1544.3	1541.5	1535.2	1530.7	1522.2	1522.2	1525.0	1510.2	1500.0	1499.4
5°	1580.7	1575.0	1565.4	1553.4	1542.6	1527.8	1522.2	1519.9	1500.0	1484.6	1479.5
7.5°	1618.8	1604.6	1588.1	1568.8	1550.6	1529.6	1518.8	1510.2	1484.6	1465.9	1454.5
10°	1658.6	1635.9	1610.3	1582.4	1557.4	1529.0	1511.4	1496.6	1467.0	1440.9	1427.8
12.5°	1693.9	1662.0	1629.6	1593.2	1559.1	1523.3	1498.8	1479.5	1444.8	1413.6	1397.6
15°	1710.4	1676.3	1649.5	1599.5	1553.4	1517.0	1485.8	1456.8	1419.8	1385.1	1360.7
17.5°	1724.6	1687.1	1651.8	1604.6	1551.2	1504.0	1466.4	1429.5	1389.7	1353.3	1323.1
20°	1720.6	1688.8	1645.5	1595.5	1544.9	1490.3	1447.7	1400.5	1351.0	1314.1	1282.2
22.5°	1697.9	1671.7	1626.8	1579.0	1530.1	1471.6	1423.2	1372.0	1311.2	1270.8	1235.0
25°	1668.9	1643.8	1599.5	1550.0	1501.7	1444.8	1388.0	1335.7	1270.3	1221.9	1175.9
27.5°	1646.1	1608.6	1564.2	1509.1	1462.5	1408.4	1348.7	1295.9	1225.3	1171.9	1118.5
30°	1620.0	1577.3	1522.7	1464.2	1414.7	1365.2	1307.2	1254.3	1176.4	1115.6	1049.1
32.5°	1544.9	1545.5	1480.7	1415.3	1362.4	1309.5	1257.8	1201.5	1124.1	1052.5	984.3
35°	1447.1	1485.2	1437.4	1362.4	1297.0	1248.1	1205.4	1150.3	1064.4	990.5	913.2
37.5°	1316.3	1383.4	1389.1	1311.2	1239.0	1181.6	1139.5	1093.4	1007.0	927.4	850.6
40°	1185.5	1274.2	1309.5	1255.5	1177.0	1111.1	1069.0	1026.9	945.6	859.7	788.7
42.5°	1025.2	1169.1	1212.8	1196.9	1112.8	1041.7	997.3	959.2	880.2	796.1	725.5
45°	844.4	1038.8	1102.5	1119.0	1047.9	971.7	920.6	883.6	814.2	740.3	667.0
47.5°	678.3	892.1	997.3	1014.4	976.9	902.9	844.4	805.7	750.6	686.9	614.1
50°	517.4	736.3	887.0	913.2	904.1	829.0	775.0	729.5	687.4	630.6	562.4
52.5°	411.7	588.5	767.6	816.5	819.4	760.2	703.4	661.9	620.9	576.0	514.0
55°	328.7	454.9	636.3	719.3	727.2	686.3	634.0	594.2	563.5	521.4	469.1
57.5°	276.9	352.0	509.5	621.5	624.9	613.5	563.5	530.5	504.9	468.5	422.5
60°	236.5	279.2	392.9	523.7	540.7	540.7	500.9	471.9	447.5	420.2	376.4
62.5°	204.7	228.0	298.0	416.2	460.0	466.8	441.8	416.2	398.0	370.7	330.4
65°	172.3	189.9	230.9	321.8	382.1	394.6	382.1	363.3	349.1	320.7	288.9
67.5°	141.6	158.6	184.2	243.9	309.9	325.2	323.0	313.3	298.5	277.5	243.9
70°	117.1	127.4	146.1	180.8	243.4	266.7	273.5	265.0	251.9	229.1	204.7
72.5°	96.7	104.6	113.7	138.7	182.0	212.7	224.0	219.5	209.8	188.2	167.7
75°	79.0	84.2	90.4	102.3	130.8	165.5	178.5	177.4	167.7	149.5	133.1
77.5°	63.7	65.4	69.9	77.3	91.5	122.8	133.1	136.5	129.1	113.7	100.6
80°	47.8	50.0	52.3	56.3	63.1	81.3	94.4	99.5	93.3	84.2	71.1
82.5°	33.5	34.1	36.4	38.7	42.1	49.5	63.1	68.8	63.1	53.4	49.5
85°	21.0	20.5	21.0	21.6	25.0	26.7	35.3	39.2	38.1	32.4	27.9
87.5°	9.7	9.7	9.1	9.7	9.1	10.8	12.5	18.2	13.6	11.9	10.8
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°	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5	1512.5
2.5°	1494.9	1493.2	1487.5	1479.5	1472.7	1461.3	1461.3	1464.2	1463.6	1464.7	1463.6
5°	1471.0	1463.0	1454.5	1443.7	1433.5	1418.7	1417.0	1418.1	1417.5	1417.0	1413.6
7.5°	1440.3	1431.2	1420.4	1406.7	1395.4	1381.1	1377.2	1376.0	1371.5	1369.8	1365.2
10°	1410.7	1399.9	1385.7	1369.2	1353.9	1337.4	1327.1	1321.4	1314.1	1306.1	1299.3
12.5°	1377.7	1363.5	1345.3	1325.4	1299.8	1281.6	1266.3	1256.6	1246.4	1232.7	1223.1
15°	1342.5	1313.5	1291.9	1259.5	1228.2	1221.9	1198.6	1167.9	1165.6	1099.1	1075.8
17.5°	1295.3	1271.4	1231.0	1189.0	1146.3	1111.6	1112.2	1029.2	1003.6	1003.0	962.1
20°	1246.4	1213.4	1166.8	1124.1	1079.2	1007.6	950.7	923.4	881.9	866.0	842.7
22.5°	1189.0	1145.7	1091.2	1033.2	970.6	912.6	856.9	830.7	809.7	792.1	782.4
25°	1120.7	1076.9	1011.6	939.3	869.4	815.4	784.7	772.7	736.9	724.4	712.5
27.5°	1051.9	1004.2	918.9	849.5	792.1	755.1	723.3	703.4	686.3	654.5	640.3
30°	986.5	909.8	839.3	775.6	732.4	697.7	674.4	634.0	610.1	595.3	589.1
32.5°	915.5	833.6	769.9	714.7	670.4	640.3	605.6	578.3	567.5	548.1	520.3
35°	842.7	768.2	701.7	657.3	619.2	578.3	556.7	530.5	503.2	488.4	486.2
37.5°	772.2	701.7	653.9	607.3	561.2	537.3	505.5	477.6	468.0	454.3	439.5
40°	708.5	648.2	603.9	550.4	522.6	485.6	461.1	446.9	423.6	418.5	413.9
42.5°	656.2	604.4	554.4	506.6	474.2	444.7	423.0	406.6	399.2	386.7	382.7
45°	603.3	555.5	504.4	466.8	429.9	404.8	390.1	375.8	367.3	363.9	357.1
47.5°	555.5	508.9	461.7	415.7	390.6	374.1	357.7	350.3	345.1	337.8	333.8
50°	510.0	458.3	413.9	384.9	358.2	343.4	332.6	325.8	317.9	309.9	298.5
52.5°	464.0	419.6	377.0	346.3	326.4	316.7	306.5	299.1	283.2	267.8	258.1
55°	417.4	371.9	337.2	313.9	299.7	289.4	277.5	255.9	241.1	232.6	228.0
57.5°	375.3	334.3	303.6	284.3	274.1	257.0	236.0	222.3	214.9	211.5	209.2
60°	330.4	295.1	269.5	254.7	238.8	216.1	204.7	197.9	195.6	194.5	192.8
62.5°	291.7	260.4	240.5	224.0	201.3	189.3	183.1	179.7	179.7	178.0	176.8
65°	250.8	226.3	209.2	185.4	173.4	168.3	166.0	164.3	162.6	162.1	159.8
67.5°	217.2	195.6	173.4	160.9	153.5	150.7	148.4	147.8	145.6	143.9	142.2
70°	183.1	162.1	143.9	138.2	134.2	133.1	130.8	128.5	126.8	124.5	123.4
72.5°	149.0	129.1	122.8	120.0	116.0	114.3	111.4	109.7	106.9	105.8	104.6
75°	113.7	105.8	102.3	100.1	97.2	93.3	92.1	90.4	89.3	87.6	85.9
77.5°	90.4	85.9	81.9	79.0	76.8	73.9	71.6	71.1	69.9	68.2	67.7
80°	67.7	64.3	62.5	59.7	56.9	55.2	54.0	53.4	51.7	51.2	50.6
82.5°	46.6	43.8	42.6	39.2	38.1	38.1	37.5	36.4	35.3	34.7	34.1
85°	26.2	25.0	23.3	23.9	22.2	22.2	21.6	21.0	20.5	19.9	19.3
87.5°	10.2	9.7	9.1	8.5	8.5	6.8	6.8	6.8	7.4	6.8	6.3
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: P242248

CATALOG NUMBER: S121RDR-S880D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1512.5	1512.5	1512.5	1512.5
2.5°	1465.3	1466.4	1462.5	1460.2
5°	1413.6	1411.9	1409.6	1407.9
7.5°	1360.7	1359.0	1359.0	1352.1
10°	1296.4	1291.9	1288.5	1282.8
12.5°	1214.5	1207.7	1205.4	1198.6
15°	1059.9	1045.7	1036.0	1053.1
17.5°	952.4	915.5	918.3	904.1
20°	842.1	827.3	834.7	813.1
22.5°	770.5	761.4	752.8	748.3
25°	703.9	693.1	680.1	684.6
27.5°	620.4	620.4	611.8	615.2
30°	577.7	573.2	558.9	561.8
32.5°	511.2	505.5	503.8	504.9
35°	479.3	470.2	467.4	464.0
37.5°	435.0	431.6	432.1	429.9
40°	405.4	402.6	399.2	400.3
42.5°	379.8	378.1	374.7	375.3
45°	354.8	353.1	351.4	351.4
47.5°	326.9	323.5	320.7	317.3
50°	290.6	283.7	278.6	276.3
52.5°	251.3	247.9	244.5	244.5
55°	226.3	224.6	223.5	222.9
57.5°	208.7	207.5	207.5	205.8
60°	192.8	192.8	192.2	193.3
62.5°	177.4	175.7	176.3	176.3
65°	159.8	159.2	158.6	158.1
67.5°	141.0	140.4	141.0	139.9
70°	122.3	122.3	121.7	120.5
72.5°	102.9	104.1	102.9	102.3
75°	84.7	84.2	84.7	83.0
77.5°	67.7	65.4	66.5	67.1
80°	50.0	50.0	49.5	48.9
82.5°	33.5	34.1	33.0	33.0
85°	19.3	19.3	18.2	19.3
87.5°	5.7	5.7	5.7	6.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)