

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: P243084

Luminaire Tested: **S121RDR-H1025D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243084
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-H1025D830-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3099.4 lumens
Efficiency: N/A
Efficacy: 82.2 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

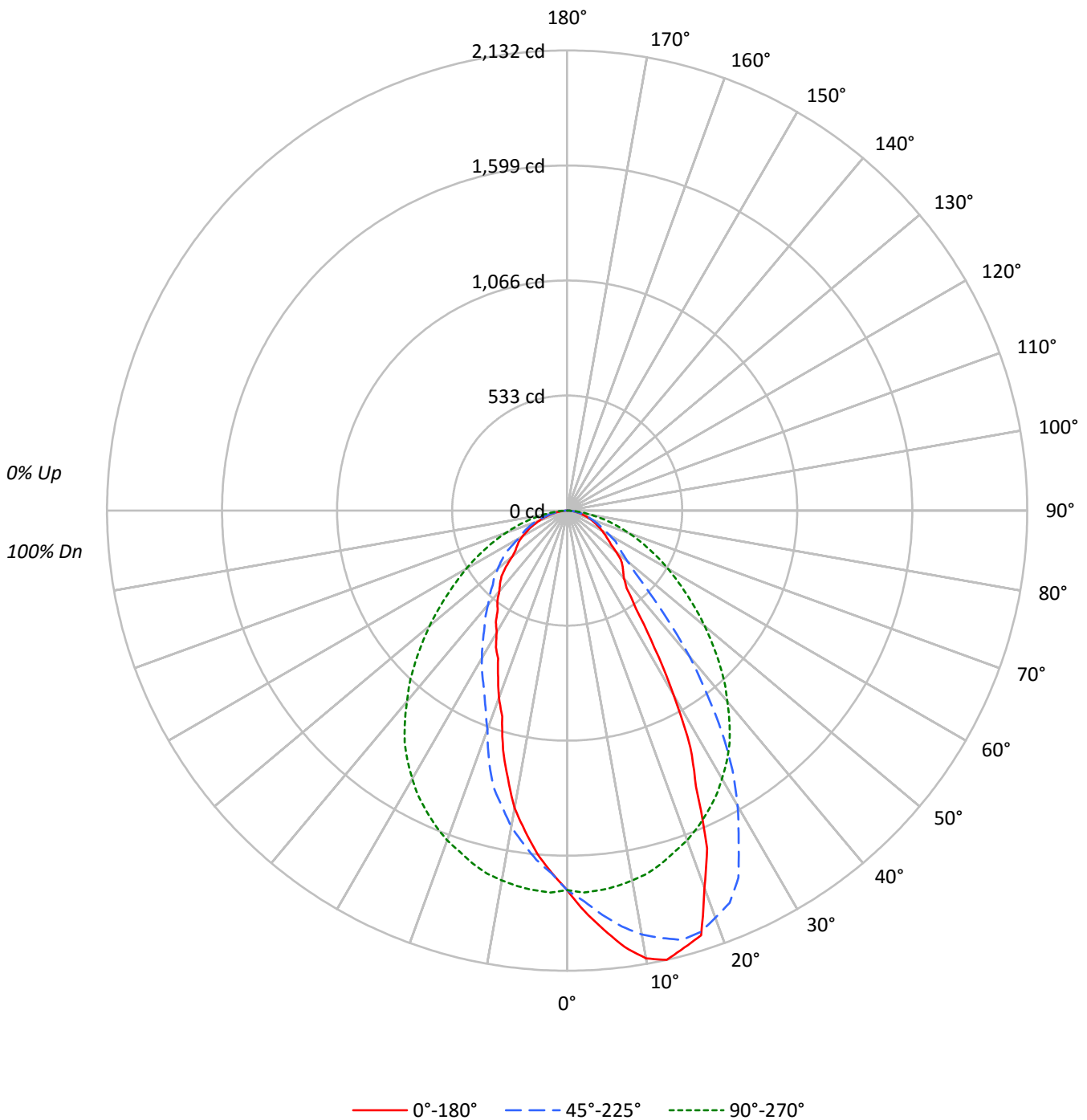
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	52092	52092	52092
5°	57969	52508	47440
10°	63387	52357	42125
15°	64301	51917	35181
20°	58613	51254	29097
25°	46165	50324	24752
30°	33752	49107	22317
35°	20144	47478	20285
40°	15796	44666	18922
45°	15223	41697	18001
50°	13566	38352	15281
55°	11850	34895	14588
60°	11076	31941	14145
65°	10320	29047	13104
70°	9763	26189	11946
75°	8952	23297	10624
80°	8139	18889	9282
85°	7649	14414	6765



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	167.8	5.4
10°-20°	468.2	15.1
20°-30°	622.5	20.1
30°-40°	593.9	19.2
40°-50°	492.8	15.9
50°-60°	366.5	11.8
60°-70°	237.3	7.7
70°-80°	120.8	3.9
80°-90°	29.5	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°	1258.6	40.6
0°-40°	1852.5	59.8
0°-60°	2711.8	87.5
0°-90°	3099.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3099.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1758	1758	1758	1758	1758	
5°	1949	1881	1765	1625	1595	191
15°	2096	2059	1692	1323	1147	583
25°	1412	1877	1539	911	757	655
35°	557	1247	1313	669	561	379
45°	363	538	995	488	430	277
55°	229	291	676	352	282	208
65°	147	167	414	212	187	147
75°	78	86	204	105	93	83
85°	22	22	42	22	20	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°	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1
2.5°	1858.9	1854.2	1859.5	1857.6	1848.9	1850.9	1840.3	1833.7	1817.8	1811.8	1811.8
5°	1949.0	1955.7	1951.7	1953.0	1944.4	1939.1	1927.8	1915.2	1895.3	1880.8	1875.4
7.5°	2039.2	2041.2	2043.2	2037.9	2027.9	2018.6	2002.7	1984.2	1962.3	1943.7	1929.1
10°	2106.8	2111.5	2108.8	2100.8	2093.6	2079.6	2062.4	2042.5	2018.6	1994.1	1976.2
12.5°	2132.0	2136.0	2142.0	2137.3	2136.6	2130.0	2112.8	2088.3	2059.1	2028.6	2008.0
15°	2096.2	2093.6	2109.5	2105.5	2104.2	2101.5	2106.2	2100.8	2085.6	2059.1	2033.9
17.5°	2063.1	2061.7	2077.6	2081.6	2075.7	2067.0	2061.7	2055.1	2047.8	2048.5	2045.2
20°	1858.9	1899.3	1907.3	1928.5	1973.6	2003.4	2033.2	2031.9	2010.7	2007.4	2006.0
22.5°	1694.5	1709.7	1702.4	1736.9	1761.4	1815.1	1867.5	1933.8	1978.2	1966.9	1959.6
25°	1412.1	1459.8	1481.7	1524.8	1587.1	1655.4	1685.2	1755.5	1823.7	1876.8	1917.2
27.5°	1237.0	1247.6	1261.6	1306.0	1329.2	1391.5	1502.9	1598.3	1662.0	1719.7	1826.4
30°	986.5	991.1	1039.5	1064.0	1132.3	1193.3	1290.1	1367.0	1494.9	1580.4	1662.6
32.5°	753.1	749.1	802.2	830.7	898.3	980.5	1088.5	1160.1	1285.4	1425.3	1523.4
35°	556.9	556.2	584.7	604.6	678.8	741.8	879.1	972.5	1109.8	1247.0	1373.6
37.5°	453.4	452.8	458.8	476.0	507.1	578.1	644.4	782.9	916.8	1052.1	1210.5
40°	408.4	411.7	413.0	421.0	431.6	452.8	493.2	590.0	721.3	882.4	1041.5
42.5°	384.5	384.5	385.8	387.8	393.1	399.1	423.6	460.7	566.1	694.8	873.1
45°	363.3	364.0	365.3	366.6	365.3	368.6	379.9	395.1	436.2	537.6	710.0
47.5°	338.1	337.4	340.7	342.7	345.4	349.4	350.0	358.0	375.9	428.9	554.2
50°	294.3	295.0	298.3	306.3	314.9	322.2	326.8	332.1	338.1	363.3	429.6
52.5°	254.6	255.2	257.2	263.2	271.1	280.4	295.0	306.9	311.6	319.5	356.7
55°	229.4	229.4	232.0	235.3	237.3	244.0	253.9	267.2	284.4	291.0	306.9
57.5°	208.2	208.2	209.5	209.5	212.1	215.5	222.1	228.7	243.3	264.5	274.5
60°	186.9	186.9	188.3	188.3	191.6	192.9	197.6	201.5	209.5	224.1	244.0
62.5°	167.1	165.7	167.1	167.7	169.7	171.7	175.0	179.7	184.3	192.9	207.5
65°	147.2	146.5	147.8	149.2	150.5	153.1	155.1	158.4	162.4	167.1	174.4
67.5°	129.9	129.3	129.9	131.9	131.3	132.6	135.9	137.2	141.2	145.8	151.8
70°	112.7	111.4	112.7	112.7	113.4	115.4	115.4	118.7	122.0	124.6	129.9
72.5°	94.1	94.8	94.1	94.8	96.1	96.8	98.1	100.1	102.1	104.7	108.1
75°	78.2	78.2	78.9	79.6	80.9	80.9	81.5	82.9	84.2	85.5	89.5
77.5°	62.3	63.0	63.6	64.3	64.3	65.0	65.6	66.3	68.3	68.9	70.9
80°	47.7	48.4	48.4	48.4	49.7	48.4	49.7	51.0	51.0	51.7	53.0
82.5°	34.5	35.1	34.5	35.1	35.8	35.8	35.1	35.8	35.8	37.1	37.1
85°	22.5	21.2	21.2	21.2	21.2	21.2	21.9	22.5	21.9	21.9	22.5
87.5°	9.3	9.3	9.3	9.3	9.9	9.3	9.9	9.9	9.9	9.3	9.9
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°	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1
2.5°	1815.1	1809.8	1805.2	1797.2	1787.3	1772.7	1770.7	1771.4	1753.5	1736.2	1733.6
5°	1864.2	1855.6	1841.0	1823.7	1807.8	1783.3	1772.7	1765.4	1738.2	1715.0	1705.7
7.5°	1916.6	1896.0	1876.1	1848.9	1822.4	1790.6	1770.7	1755.5	1719.7	1689.2	1673.3
10°	1957.7	1932.5	1904.0	1869.5	1833.0	1793.9	1764.1	1740.2	1697.1	1659.3	1639.4
12.5°	1986.8	1958.3	1924.5	1883.4	1841.6	1789.9	1753.5	1721.6	1669.3	1624.2	1600.3
15°	2002.1	1971.6	1929.8	1884.7	1841.6	1787.3	1738.9	1692.5	1640.8	1584.4	1554.6
17.5°	2016.0	1976.2	1929.1	1877.4	1833.7	1776.7	1717.0	1656.7	1598.3	1545.3	1496.9
20°	2006.0	1972.2	1919.9	1866.2	1817.1	1750.8	1687.8	1625.5	1552.6	1490.9	1442.6
22.5°	1959.6	1953.7	1897.3	1839.7	1783.3	1719.7	1646.7	1585.1	1506.9	1433.9	1375.6
25°	1905.3	1898.0	1867.5	1805.8	1742.2	1675.9	1610.3	1539.3	1449.2	1373.6	1306.6
27.5°	1859.5	1843.0	1821.1	1763.4	1695.1	1628.8	1561.2	1492.3	1396.1	1312.0	1235.7
30°	1766.7	1782.6	1758.1	1718.3	1639.4	1575.1	1510.2	1435.3	1339.8	1243.0	1164.8
32.5°	1619.6	1715.7	1691.2	1659.3	1581.8	1511.5	1449.8	1376.3	1270.9	1175.4	1094.5
35°	1489.6	1572.5	1628.2	1589.7	1521.4	1439.9	1376.9	1312.6	1202.6	1105.1	1027.6
37.5°	1363.7	1451.8	1544.6	1509.5	1453.2	1365.7	1299.4	1235.7	1133.6	1035.5	957.9
40°	1198.6	1327.2	1416.7	1430.6	1372.9	1284.8	1220.5	1154.8	1064.7	967.2	884.4
42.5°	1040.1	1205.2	1277.5	1349.1	1290.1	1207.2	1135.6	1079.9	993.1	907.6	817.4
45°	874.4	1062.0	1168.8	1223.8	1202.6	1127.0	1048.8	995.1	922.1	842.6	757.1
47.5°	730.6	908.9	1061.4	1092.5	1113.1	1038.8	965.9	911.5	848.6	782.9	701.4
50°	579.4	764.4	927.4	983.8	1022.9	955.3	879.1	832.0	779.0	719.9	647.7
52.5°	450.8	623.8	794.9	891.0	904.2	869.1	798.8	752.4	710.0	657.0	591.3
55°	358.0	491.9	662.9	775.0	787.6	779.0	716.0	675.5	644.4	600.0	544.9
57.5°	297.0	382.5	537.0	666.3	684.8	692.8	641.1	604.6	576.8	541.6	491.9
60°	256.6	301.6	419.6	546.3	597.3	611.2	565.5	539.0	515.8	483.9	437.5
62.5°	226.7	247.3	320.9	442.8	508.5	520.4	497.2	477.3	458.1	427.6	386.5
65°	188.9	210.8	247.3	342.1	423.0	428.9	433.6	414.3	399.1	373.9	337.4
67.5°	158.4	175.7	199.5	262.5	339.4	356.7	368.6	360.0	345.4	320.2	289.0
70°	134.6	144.5	161.8	196.9	259.2	296.3	308.9	302.3	295.0	267.8	241.3
72.5°	112.0	120.0	129.9	151.1	195.6	235.3	253.9	250.6	242.6	222.1	200.2
75°	92.8	96.1	104.1	116.0	141.9	179.0	200.9	203.5	194.2	175.0	157.8
77.5°	72.9	76.2	80.9	88.2	104.7	129.9	147.8	154.5	148.5	134.6	117.3
80°	55.7	57.7	61.0	64.3	70.9	88.2	106.7	110.7	107.4	96.1	85.5
82.5°	37.1	38.5	41.1	43.8	47.1	55.0	70.9	73.6	72.9	63.0	55.7
85°	22.5	22.5	23.2	25.2	26.5	29.8	38.5	42.4	40.4	33.8	30.5
87.5°	9.3	9.9	9.3	9.3	9.3	9.9	12.6	17.2	13.3	9.9	9.3
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°	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1	1758.1
2.5°	1726.3	1723.6	1713.7	1704.4	1693.8	1681.2	1681.9	1683.9	1679.2	1677.9	1682.5
5°	1692.5	1683.2	1668.0	1652.7	1640.8	1624.9	1615.6	1620.2	1616.9	1610.9	1607.0
7.5°	1656.7	1643.4	1621.5	1602.3	1586.4	1556.6	1549.9	1542.0	1535.4	1522.1	1519.5
10°	1614.3	1595.0	1567.2	1540.0	1510.8	1487.6	1465.8	1456.5	1438.6	1426.6	1423.3
12.5°	1570.5	1538.7	1507.5	1467.7	1434.6	1400.8	1381.6	1368.3	1350.4	1321.2	1307.3
15°	1525.4	1477.0	1435.3	1391.5	1369.0	1323.2	1286.8	1245.7	1223.8	1174.7	1146.2
17.5°	1465.1	1409.4	1353.1	1317.3	1270.2	1206.5	1145.6	1124.3	1091.2	1059.4	1027.6
20°	1383.6	1332.5	1278.8	1225.1	1153.5	1079.9	1056.7	1020.3	983.8	964.6	948.0
22.5°	1308.6	1253.6	1190.0	1119.0	1045.5	987.8	957.3	930.8	908.2	891.0	871.8
25°	1237.7	1180.7	1089.9	1017.6	953.3	910.9	895.6	861.2	837.3	824.7	808.1
27.5°	1159.5	1081.3	1008.3	933.4	876.4	852.5	817.4	790.2	765.0	740.5	734.5
30°	1085.2	998.4	926.1	865.1	823.4	790.2	754.4	722.6	706.0	696.7	681.5
32.5°	1011.6	923.5	855.9	808.1	763.0	727.9	694.1	677.5	652.3	631.8	618.5
35°	932.8	855.9	802.2	746.5	703.4	668.9	651.7	613.9	600.0	594.0	580.1
37.5°	863.1	794.9	740.5	698.1	651.0	623.2	589.4	580.7	562.2	546.3	541.6
40°	805.5	741.2	690.1	635.1	605.9	569.5	552.9	529.7	523.1	517.1	506.5
42.5°	742.5	687.5	629.1	592.0	548.9	532.3	506.5	499.9	483.9	478.0	474.0
45°	688.8	637.7	582.1	537.0	512.5	487.9	478.0	461.4	454.1	446.8	439.5
47.5°	636.4	583.4	539.0	496.5	469.4	458.1	440.2	428.3	420.3	413.0	405.7
50°	588.0	534.3	484.6	454.1	434.9	419.0	407.7	397.8	386.5	370.6	354.0
52.5°	535.7	487.3	446.8	417.0	399.8	384.5	374.6	357.3	335.4	318.2	310.3
55°	483.3	437.5	402.4	378.5	366.6	352.0	329.5	304.3	290.4	287.7	285.7
57.5°	438.9	395.8	363.3	344.7	330.8	305.0	281.1	271.8	267.8	266.5	265.2
60°	389.1	350.7	327.5	307.6	284.4	259.9	252.6	251.3	247.3	245.3	244.0
62.5°	343.4	310.3	289.0	265.2	240.6	236.0	230.7	227.4	225.4	220.8	218.8
65°	299.0	272.5	249.3	224.1	215.5	212.1	207.5	202.9	197.6	194.2	191.6
67.5°	256.6	230.7	206.2	196.9	192.3	186.9	181.0	174.4	171.7	167.1	166.4
70°	214.8	190.9	177.7	171.7	163.1	158.4	151.8	149.2	144.5	142.5	140.5
72.5°	175.0	157.8	152.5	143.9	137.9	130.6	127.3	124.6	122.0	118.7	118.7
75°	136.6	131.9	122.0	115.4	109.4	105.4	104.1	99.4	98.8	96.8	95.5
77.5°	108.7	99.4	96.1	88.8	84.9	82.9	81.5	78.9	76.2	75.6	74.9
80°	76.9	72.3	68.3	65.0	61.7	60.3	59.0	58.3	57.0	55.7	55.0
82.5°	50.4	47.7	45.1	43.1	42.4	40.4	39.1	38.5	37.1	37.1	37.1
85°	27.2	26.5	25.2	23.9	22.5	22.5	21.9	21.2	21.2	19.2	19.2
87.5°	8.6	8.6	8.0	8.0	6.6	7.3	6.6	6.6	6.0	6.6	6.6
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: P243084

CATALOG NUMBER: S121RDR-H1025D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1758.1	1758.1	1758.1	1758.1
2.5°	1677.2	1677.2	1674.6	1677.2
5°	1604.3	1598.3	1596.4	1595.0
7.5°	1511.5	1506.2	1500.9	1495.6
10°	1416.7	1408.7	1404.1	1400.1
12.5°	1293.4	1283.4	1264.9	1270.2
15°	1141.6	1142.2	1099.2	1146.9
17.5°	1017.6	1020.9	1003.7	1001.0
20°	938.7	937.4	930.8	922.8
22.5°	857.8	851.9	849.2	836.6
25°	782.3	771.7	775.0	757.1
27.5°	727.2	718.6	716.0	714.6
30°	672.2	654.3	648.4	652.3
32.5°	616.5	615.2	613.2	613.9
35°	569.5	566.8	560.8	560.8
37.5°	537.0	537.6	534.3	531.7
40°	497.2	493.9	493.2	489.2
42.5°	468.7	462.1	459.4	460.1
45°	435.5	431.6	428.3	429.6
47.5°	396.4	392.5	385.2	383.2
50°	343.4	338.1	334.8	331.5
52.5°	303.6	303.0	301.6	301.0
55°	284.4	282.4	282.4	282.4
57.5°	264.5	263.2	262.5	263.8
60°	242.6	241.3	238.7	238.7
62.5°	215.5	214.1	213.5	210.8
65°	188.3	187.6	186.3	186.9
67.5°	163.1	162.4	162.4	160.4
70°	138.6	138.6	136.6	137.9
72.5°	116.0	115.4	115.4	115.4
75°	94.1	93.5	92.8	92.8
77.5°	74.2	74.2	72.9	72.9
80°	53.7	53.7	53.0	54.4
82.5°	35.8	37.1	35.8	35.8
85°	19.2	19.9	19.9	19.9
87.5°	6.0	5.3	5.3	5.3
90°	0.0	0.0	0.0	0.0

(END OF REPORT)