

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: P243109

Luminaire Tested: **S121RDR-H1025D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243109
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-H1025D940-X4F0-XX-UDD-A-W
Description: DEFINE 1 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: 2932.3 lumens
Efficiency: N/A
Efficacy: 77.8 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

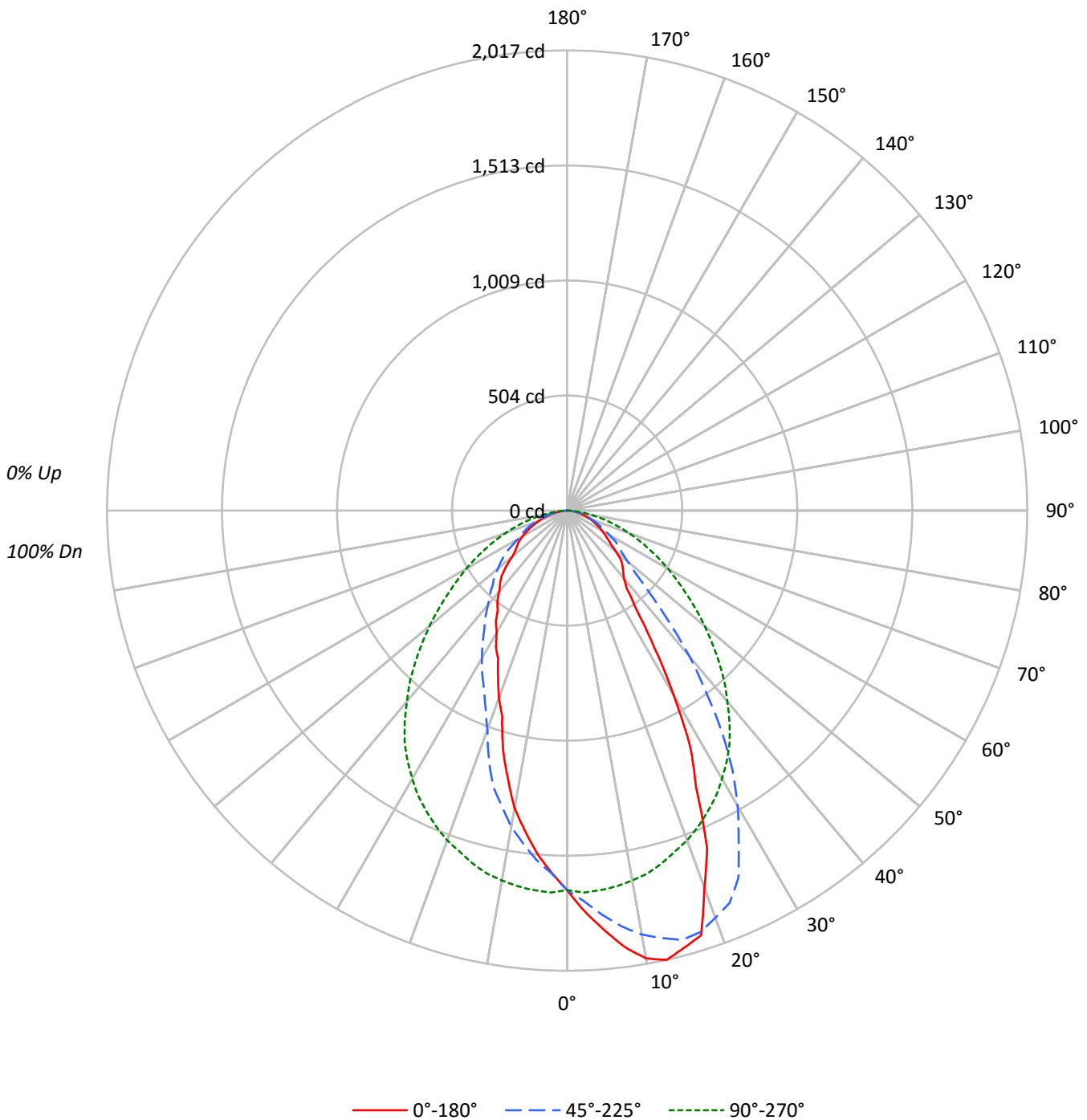
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	49283	49283	49283
5°	54843	49677	44882
10°	59969	49535	39853
15°	60835	49117	33282
20°	55451	48492	27527
25°	43674	47610	23415
30°	31931	46458	21113
35°	19055	44917	19192
40°	14942	42260	17904
45°	14402	39447	17029
50°	12838	36282	14456
55°	11210	33015	13803
60°	10483	30216	13381
65°	9759	27483	12402
70°	9235	24777	11305
75°	8472	22037	10051
80°	7713	17865	8770
85°	7241	13633	6391



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	158.8	5.4
10°-20°	443.0	15.1
20°-30°	589.0	20.1
30°-40°	561.8	19.2
40°-50°	466.3	15.9
50°-60°	346.7	11.8
60°-70°	224.5	7.7
70°-80°	114.3	3.9
80°-90°	28.0	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°	1190.7	40.6
0°-40°	1752.5	59.8
0°-60°	2565.5	87.5
0°-90°	2932.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2932.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1663	1663	1663	1663	1663	
5°	1844	1779	1670	1537	1509	181
15°	1983	1948	1601	1252	1085	552
25°	1336	1776	1456	862	716	620
35°	527	1180	1242	633	531	359
45°	344	509	941	462	406	262
55°	217	275	639	333	267	197
65°	139	158	392	201	177	139
75°	74	81	192	100	88	79
85°	21	21	40	21	19	23
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°	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3
2.5°	1758.6	1754.2	1759.3	1757.4	1749.2	1751.1	1741.1	1734.8	1719.7	1714.1	1714.1
5°	1843.9	1850.2	1846.4	1847.7	1839.5	1834.5	1823.9	1811.9	1793.1	1779.3	1774.3
7.5°	1929.2	1931.1	1933.0	1928.0	1918.6	1909.8	1894.7	1877.2	1856.5	1838.9	1825.1
10°	1993.2	1997.6	1995.1	1987.5	1980.6	1967.5	1951.2	1932.4	1909.8	1886.6	1869.6
12.5°	2017.0	2020.8	2026.4	2022.0	2021.4	2015.1	1998.8	1975.6	1948.0	1919.2	1899.7
15°	1983.2	1980.6	1995.7	1991.9	1990.7	1988.2	1992.6	1987.5	1973.1	1948.0	1924.2
17.5°	1951.8	1950.5	1965.6	1969.4	1963.7	1955.6	1950.5	1944.3	1937.4	1938.0	1934.9
20°	1758.6	1796.9	1804.4	1824.5	1867.1	1895.4	1923.6	1922.3	1902.3	1899.1	1897.9
22.5°	1603.1	1617.5	1610.6	1643.2	1666.4	1717.2	1766.8	1829.5	1871.5	1860.9	1854.0
25°	1335.9	1381.1	1401.8	1442.5	1501.5	1566.1	1594.3	1660.8	1725.4	1775.6	1813.8
27.5°	1170.3	1180.4	1193.5	1235.6	1257.5	1316.5	1421.8	1512.1	1572.4	1626.9	1727.9
30°	933.3	937.6	983.4	1006.6	1071.2	1128.9	1220.5	1293.3	1414.3	1495.2	1573.0
32.5°	712.5	708.7	758.9	785.9	849.8	927.6	1029.8	1097.6	1216.1	1348.4	1441.3
35°	526.8	526.2	553.2	572.0	642.2	701.8	831.6	920.1	1049.9	1179.7	1299.5
37.5°	429.0	428.4	434.0	450.3	479.8	546.9	609.6	740.7	867.4	995.3	1145.2
40°	386.3	389.5	390.7	398.3	408.3	428.4	466.6	558.2	682.4	834.8	985.3
42.5°	363.8	363.8	365.0	366.9	371.9	377.6	400.8	435.9	535.6	657.3	826.0
45°	343.7	344.3	345.6	346.8	345.6	348.7	359.4	373.8	412.7	508.6	671.7
47.5°	319.9	319.2	322.4	324.3	326.8	330.5	331.2	338.7	355.6	405.8	524.3
50°	278.5	279.1	282.2	289.8	297.9	304.8	309.2	314.2	319.9	343.7	406.4
52.5°	240.8	241.5	243.3	249.0	256.5	265.3	279.1	290.4	294.8	302.3	337.4
55°	217.0	217.0	219.5	222.7	224.5	230.8	240.2	252.8	269.1	275.3	290.4
57.5°	196.9	196.9	198.2	198.2	200.7	203.8	210.1	216.4	230.2	250.2	259.7
60°	176.9	176.9	178.1	178.1	181.3	182.5	186.9	190.7	198.2	212.0	230.8
62.5°	158.1	156.8	158.1	158.7	160.6	162.4	165.6	170.0	174.4	182.5	196.3
65°	139.2	138.6	139.9	141.1	142.4	144.9	146.8	149.9	153.7	158.1	164.9
67.5°	122.9	122.3	122.9	124.8	124.2	125.4	128.6	129.8	133.6	138.0	143.6
70°	106.6	105.4	106.6	106.6	107.2	109.1	109.1	112.3	115.4	117.9	122.9
72.5°	89.1	89.7	89.1	89.7	90.9	91.6	92.8	94.7	96.6	99.1	102.2
75°	74.0	74.0	74.6	75.3	76.5	76.5	77.1	78.4	79.7	80.9	84.7
77.5°	59.0	59.6	60.2	60.8	60.8	61.5	62.1	62.7	64.6	65.2	67.1
80°	45.2	45.8	45.8	45.8	47.0	45.8	47.0	48.3	48.3	48.9	50.2
82.5°	32.6	33.2	32.6	33.2	33.9	33.9	33.2	33.9	33.9	35.1	35.1
85°	21.3	20.1	20.1	20.1	20.1	20.1	20.7	21.3	20.7	20.7	21.3
87.5°	8.8	8.8	8.8	8.8	9.4	8.8	9.4	9.4	9.4	8.8	9.4
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°	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3
2.5°	1717.2	1712.2	1707.8	1700.3	1690.9	1677.1	1675.2	1675.8	1658.9	1642.6	1640.1
5°	1763.6	1755.5	1741.7	1725.4	1710.3	1687.1	1677.1	1670.2	1644.5	1622.5	1613.7
7.5°	1813.2	1793.7	1774.9	1749.2	1724.1	1694.0	1675.2	1660.8	1626.9	1598.1	1583.0
10°	1852.1	1828.2	1801.3	1768.7	1734.2	1697.2	1668.9	1646.4	1605.6	1569.8	1551.0
12.5°	1879.7	1852.7	1820.7	1781.8	1742.3	1693.4	1658.9	1628.8	1579.3	1536.6	1514.0
15°	1894.1	1865.2	1825.7	1783.1	1742.3	1690.9	1645.1	1601.2	1552.3	1499.0	1470.7
17.5°	1907.3	1869.6	1825.1	1776.2	1734.8	1680.9	1624.4	1567.3	1512.1	1462.0	1416.2
20°	1897.9	1865.9	1816.3	1765.5	1719.1	1656.4	1596.8	1537.9	1468.9	1410.5	1364.8
22.5°	1854.0	1848.3	1795.0	1740.4	1687.1	1626.9	1557.9	1499.6	1425.6	1356.6	1301.4
25°	1802.5	1795.6	1766.8	1708.5	1648.2	1585.5	1523.4	1456.3	1371.0	1299.5	1236.2
27.5°	1759.3	1743.6	1722.9	1668.3	1603.7	1541.0	1477.0	1411.8	1320.9	1241.2	1169.1
30°	1671.4	1686.5	1663.3	1625.7	1551.0	1490.2	1428.7	1357.9	1267.5	1176.0	1102.0
32.5°	1532.2	1623.2	1599.9	1569.8	1496.5	1430.0	1371.7	1302.0	1202.3	1112.0	1035.5
35°	1409.3	1487.7	1540.4	1504.0	1439.4	1362.2	1302.7	1241.8	1137.7	1045.5	972.1
37.5°	1290.1	1373.5	1461.3	1428.1	1374.8	1292.0	1229.3	1169.1	1072.5	979.7	906.3
40°	1134.0	1255.6	1340.3	1353.5	1298.9	1215.5	1154.6	1092.6	1007.3	915.1	836.7
42.5°	984.1	1140.2	1208.6	1276.3	1220.5	1142.1	1074.4	1021.7	939.5	858.6	773.3
45°	827.3	1004.8	1105.7	1157.8	1137.7	1066.2	992.2	941.4	872.4	797.2	716.2
47.5°	691.2	859.9	1004.1	1033.6	1053.0	982.8	913.8	862.4	802.8	740.7	663.6
50°	548.2	723.1	877.4	930.7	967.7	903.8	831.6	787.1	736.9	681.1	612.8
52.5°	426.5	590.2	752.0	842.9	855.5	822.2	755.8	711.9	671.7	621.5	559.4
55°	338.7	465.4	627.2	733.2	745.1	736.9	677.4	639.1	609.6	567.6	515.5
57.5°	281.0	361.9	508.0	630.3	647.9	655.4	606.5	572.0	545.7	512.4	465.4
60°	242.7	285.4	397.0	516.8	565.1	578.3	535.0	509.9	487.9	457.8	413.9
62.5°	214.5	233.9	303.6	419.0	481.1	492.3	470.4	451.6	433.4	404.5	365.6
65°	178.7	199.4	233.9	323.6	400.1	405.8	410.2	392.0	377.6	353.7	319.2
67.5°	149.9	166.2	188.8	248.4	321.1	337.4	348.7	340.6	326.8	302.9	273.5
70°	127.3	136.7	153.0	186.3	245.2	280.4	292.3	286.0	279.1	253.4	228.3
72.5°	106.0	113.5	122.9	143.0	185.0	222.7	240.2	237.1	229.5	210.1	189.4
75°	87.8	90.9	98.5	109.8	134.2	169.3	190.0	192.5	183.8	165.6	149.3
77.5°	69.0	72.1	76.5	83.4	99.1	122.9	139.9	146.1	140.5	127.3	111.0
80°	52.7	54.6	57.7	60.8	67.1	83.4	101.0	104.7	101.6	90.9	80.9
82.5°	35.1	36.4	38.9	41.4	44.5	52.1	67.1	69.6	69.0	59.6	52.7
85°	21.3	21.3	22.0	23.8	25.1	28.2	36.4	40.1	38.3	32.0	28.9
87.5°	8.8	9.4	8.8	8.8	8.8	9.4	11.9	16.3	12.5	9.4	8.8
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°	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3	1663.3
2.5°	1633.2	1630.7	1621.3	1612.5	1602.5	1590.5	1591.2	1593.0	1588.7	1587.4	1591.8
5°	1601.2	1592.4	1578.0	1563.6	1552.3	1537.2	1528.4	1532.8	1529.7	1524.1	1520.3
7.5°	1567.3	1554.8	1534.1	1515.9	1500.9	1472.6	1466.4	1458.8	1452.6	1440.0	1437.5
10°	1527.2	1509.0	1482.7	1457.0	1429.4	1407.4	1386.7	1377.9	1361.0	1349.7	1346.6
12.5°	1485.8	1455.7	1426.2	1388.6	1357.2	1325.2	1307.1	1294.5	1277.6	1250.0	1236.8
15°	1443.2	1397.4	1357.9	1316.5	1295.1	1251.9	1217.4	1178.5	1157.8	1111.4	1084.4
17.5°	1386.1	1333.4	1280.1	1246.2	1201.7	1141.5	1083.8	1063.7	1032.3	1002.2	972.1
20°	1308.9	1260.6	1209.8	1159.0	1091.3	1021.7	999.7	965.2	930.7	912.6	896.9
22.5°	1238.1	1186.0	1125.8	1058.7	989.1	934.5	905.7	880.6	859.2	842.9	824.7
25°	1171.0	1117.0	1031.1	962.7	901.9	861.8	847.3	814.7	792.1	780.2	764.5
27.5°	1096.9	1022.9	953.9	883.1	829.1	806.6	773.3	747.6	723.8	700.6	694.9
30°	1026.7	944.5	876.2	818.5	779.0	747.6	713.7	683.6	668.0	659.2	644.7
32.5°	957.1	873.7	809.7	764.5	721.9	688.6	656.7	641.0	617.1	597.7	585.2
35°	882.4	809.7	758.9	706.2	665.4	632.8	616.5	580.8	567.6	562.0	548.8
37.5°	816.6	752.0	700.6	660.4	615.9	589.6	557.6	549.4	531.9	516.8	512.4
40°	762.0	701.2	652.9	600.8	573.2	538.8	523.1	501.1	494.8	489.2	479.2
42.5°	702.4	650.4	595.2	560.1	519.3	503.6	479.2	472.9	457.8	452.2	448.4
45°	651.6	603.4	550.7	508.0	484.8	461.6	452.2	436.5	429.6	422.7	415.8
47.5°	602.1	551.9	509.9	469.8	444.0	433.4	416.5	405.2	397.6	390.7	383.8
50°	556.3	505.5	458.5	429.6	411.4	396.4	385.7	376.3	365.6	350.6	334.9
52.5°	506.8	461.0	422.7	394.5	378.2	363.8	354.4	338.1	317.4	301.0	293.5
55°	457.2	413.9	380.7	358.1	346.8	333.0	311.7	287.9	274.7	272.2	270.3
57.5°	415.2	374.4	343.7	326.1	313.0	288.5	265.9	257.1	253.4	252.1	250.9
60°	368.2	331.8	309.8	291.0	269.1	245.9	239.0	237.7	233.9	232.1	230.8
62.5°	324.9	293.5	273.5	250.9	227.7	223.3	218.3	215.1	213.2	208.9	207.0
65°	282.9	257.8	235.8	212.0	203.8	200.7	196.3	191.9	186.9	183.8	181.3
67.5°	242.7	218.3	195.1	186.3	181.9	176.9	171.2	164.9	162.4	158.1	157.4
70°	203.2	180.6	168.1	162.4	154.3	149.9	143.6	141.1	136.7	134.8	133.0
72.5°	165.6	149.3	144.3	136.1	130.5	123.6	120.4	117.9	115.4	112.3	112.3
75°	129.2	124.8	115.4	109.1	103.5	99.7	98.5	94.1	93.5	91.6	90.3
77.5°	102.9	94.1	90.9	84.0	80.3	78.4	77.1	74.6	72.1	71.5	70.9
80°	72.8	68.4	64.6	61.5	58.3	57.1	55.8	55.2	53.9	52.7	52.1
82.5°	47.7	45.2	42.6	40.8	40.1	38.3	37.0	36.4	35.1	35.1	35.1
85°	25.7	25.1	23.8	22.6	21.3	21.3	20.7	20.1	20.1	18.2	18.2
87.5°	8.2	8.2	7.5	7.5	6.3	6.9	6.3	6.3	5.6	6.3	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: P243109

CATALOG NUMBER: S121RDR-H1025D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1663.3	1663.3	1663.3	1663.3
2.5°	1586.8	1586.8	1584.3	1586.8
5°	1517.8	1512.1	1510.3	1509.0
7.5°	1430.0	1425.0	1419.9	1414.9
10°	1340.3	1332.8	1328.4	1324.6
12.5°	1223.6	1214.2	1196.7	1201.7
15°	1080.0	1080.6	1039.9	1085.0
17.5°	962.7	965.9	949.6	947.0
20°	888.1	886.8	880.6	873.0
22.5°	811.6	805.9	803.4	791.5
25°	740.1	730.0	733.2	716.2
27.5°	688.0	679.9	677.4	676.1
30°	636.0	619.0	613.4	617.1
32.5°	583.3	582.0	580.1	580.8
35°	538.8	536.2	530.6	530.6
37.5°	508.0	508.6	505.5	503.0
40°	470.4	467.3	466.6	462.9
42.5°	443.4	437.1	434.6	435.3
45°	412.1	408.3	405.2	406.4
47.5°	375.1	371.3	364.4	362.5
50°	324.9	319.9	316.7	313.6
52.5°	287.3	286.6	285.4	284.7
55°	269.1	267.2	267.2	267.2
57.5°	250.2	249.0	248.4	249.6
60°	229.5	228.3	225.8	225.8
62.5°	203.8	202.6	202.0	199.4
65°	178.1	177.5	176.2	176.9
67.5°	154.3	153.7	153.7	151.8
70°	131.1	131.1	129.2	130.5
72.5°	109.8	109.1	109.1	109.1
75°	89.1	88.4	87.8	87.8
77.5°	70.2	70.2	69.0	69.0
80°	50.8	50.8	50.2	51.4
82.5°	33.9	35.1	33.9	33.9
85°	18.2	18.8	18.8	18.8
87.5°	5.6	5.0	5.0	5.0
90°	0.0	0.0	0.0	0.0

(END OF REPORT)