

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: P243162

Luminaire Tested: **S122DR-H865D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243162
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-58)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S122DR-H865D840-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3645.8 lumens
Efficiency: N/A
Efficacy: 115.7 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.24
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

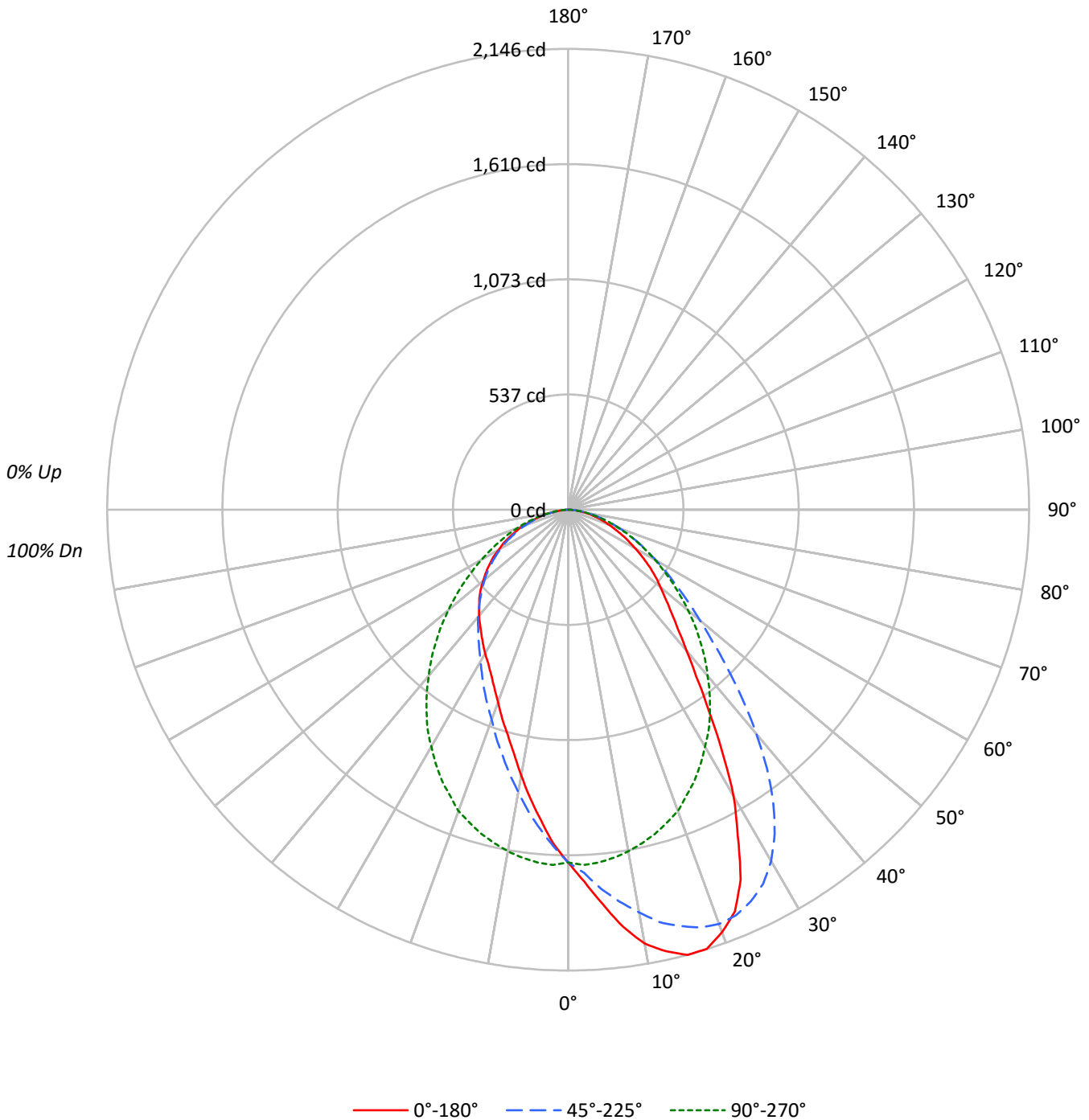
Input Watts (W): 31.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P243162

CATALOG NUMBER: S122DR-H865D840-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot





TEST NUMBER: P243162

CATALOG NUMBER: S122DR-H865D840-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	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	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88				86	
2	101	93	87	82	98	92	86	81	88	83	79	85	81	77	82	79	76				74	
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	73	69	66				63	
4	86	74	66	60	83	73	66	60	71	64	59	68	63	58	66	61	57				55	
5	79	67	59	52	77	66	58	52	64	57	52	62	56	51	60	55	51				49	
6	73	61	52	46	72	60	52	46	58	51	46	57	50	45	55	49	45				43	
7	68	56	47	41	67	55	47	41	53	46	41	52	46	41	51	45	40				39	
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37				35	
9	60	47	39	34	58	46	39	34	45	38	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°	31295	31295	31295
5°	35252	31520	27765
10°	39681	31237	24299
15°	42328	30816	21416
20°	42450	30259	19328
25°	39924	29253	17816
30°	33891	28032	17013
35°	26497	26725	16372
40°	21289	25114	16058
45°	18312	23457	15758
50°	16612	21588	15317
55°	15306	19669	14904
60°	13760	17722	14225
65°	12385	15923	13539
70°	11038	14157	12664
75°	9935	12173	11098
80°	8666	9806	8666
85°	7452	7300	4786



TEST NUMBER: P243162

CATALOG NUMBER: S122DR-H865D840-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	156.5	4.3
10°-20°	449.9	12.3
20°-30°	654.3	17.9
30°-40°	701.8	19.3
40°-50°	629.0	17.3
50°-60°	501.5	13.8
60°-70°	339.2	9.3
70°-80°	173.0	4.7
80°-90°	40.5	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°	1260.7	34.6
0°-40°	1962.6	53.8
0°-60°	3093.0	84.8
0°-90°	3645.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3645.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1643	1643	1643	1643	1643	
5°	1844	1773	1648	1493	1452	183
15°	2146	2007	1563	1183	1086	601
25°	1900	2012	1392	924	848	855
35°	1140	1665	1149	728	704	722
45°	680	1053	871	578	585	532
55°	461	612	592	435	449	411
65°	275	356	353	286	300	273
75°	135	168	165	142	151	144
85°	34	39	33	26	22	40
90°	0	0	0	0	0	



TEST NUMBER: P243162

CATALOG NUMBER: S122DR-H865D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0
2.5°	1734.2	1739.7	1734.8	1733.0	1729.4	1728.1	1718.4	1710.5	1705.6	1692.3	1693.5
5°	1843.7	1855.8	1849.1	1848.5	1835.2	1826.6	1818.1	1806.0	1787.7	1773.1	1761.6
7.5°	1959.2	1953.1	1951.3	1944.6	1934.9	1922.7	1903.9	1886.2	1863.1	1841.8	1826.0
10°	2051.6	2049.8	2052.8	2035.8	2029.7	2010.9	1994.5	1967.1	1937.3	1903.9	1883.2
12.5°	2106.4	2111.8	2116.1	2109.4	2094.8	2089.3	2062.0	2023.7	2013.3	1967.7	1942.8
15°	2146.5	2148.9	2149.5	2142.2	2134.9	2120.9	2104.5	2080.2	2046.8	2007.2	1988.4
17.5°	2144.1	2143.4	2147.1	2142.8	2138.6	2134.3	2121.6	2102.7	2076.6	2039.5	2007.8
20°	2094.2	2105.1	2113.7	2115.5	2114.9	2117.3	2111.2	2099.1	2080.2	2053.5	2017.6
22.5°	2026.1	2021.8	2040.1	2038.9	2046.8	2065.0	2072.9	2068.0	2060.8	2043.7	2015.1
25°	1899.6	1903.9	1916.6	1930.0	1961.0	1972.0	1995.7	2013.9	2016.4	2012.1	1994.5
27.5°	1709.9	1740.3	1747.0	1764.6	1807.8	1843.7	1891.7	1920.3	1961.0	1964.7	1956.8
30°	1540.9	1539.6	1550.0	1581.6	1621.1	1675.2	1737.3	1810.8	1857.7	1889.9	1901.4
32.5°	1332.9	1337.8	1364.5	1403.4	1443.6	1497.7	1569.4	1659.4	1722.1	1788.9	1826.6
35°	1139.5	1154.7	1180.3	1207.0	1250.8	1325.0	1404.6	1479.4	1575.5	1664.9	1725.7
37.5°	980.2	1000.9	1020.3	1045.9	1088.4	1145.6	1217.4	1316.5	1411.9	1519.6	1609.0
40°	856.2	864.1	877.4	902.4	931.0	988.1	1060.5	1134.7	1238.0	1361.5	1478.8
42.5°	758.9	757.0	771.6	787.5	813.6	856.2	919.4	993.6	1096.4	1205.8	1324.4
45°	679.8	680.4	686.5	702.9	723.6	747.9	796.6	866.5	944.3	1053.2	1179.0
47.5°	615.4	617.2	626.3	637.9	650.0	672.5	704.8	750.4	823.3	914.5	1032.5
50°	560.6	563.7	569.8	578.3	587.4	603.2	627.5	663.4	721.2	798.4	905.4
52.5°	512.0	513.2	515.0	522.9	530.2	544.8	563.1	591.0	636.6	701.1	784.4
55°	460.9	459.7	464.0	470.6	477.3	487.7	506.5	529.0	561.2	612.3	681.0
57.5°	408.6	410.4	413.5	417.1	429.3	440.2	454.2	474.9	500.4	540.6	597.7
60°	361.2	361.2	364.8	369.7	377.6	384.9	398.3	417.1	439.6	470.6	518.7
62.5°	315.0	317.4	321.1	323.5	330.8	339.9	350.2	364.8	385.5	410.4	446.3
65°	274.8	273.6	277.3	282.1	287.6	293.7	305.3	317.4	333.2	355.7	385.5
67.5°	233.5	237.1	238.4	240.8	245.1	253.0	258.4	271.2	284.0	304.0	329.0
70°	198.2	200.7	202.5	205.5	209.2	212.8	218.3	228.6	241.4	255.4	273.0
72.5°	166.6	168.4	166.6	169.7	171.5	175.1	182.4	187.3	197.0	209.2	225.0
75°	135.0	136.2	135.6	138.6	139.2	142.9	146.5	150.8	161.7	168.4	179.4
77.5°	105.8	107.0	107.6	108.8	110.1	111.9	113.7	118.0	124.0	130.1	138.6
80°	79.0	79.0	80.9	81.5	82.1	83.3	86.3	87.6	91.8	93.6	100.3
82.5°	54.7	55.3	55.9	55.9	56.6	57.8	58.4	60.8	62.0	65.1	68.1
85°	34.1	34.7	34.7	34.7	36.5	35.9	35.9	37.1	38.9	38.9	40.1
87.5°	17.0	17.6	17.6	17.6	18.2	18.2	18.2	18.2	18.2	19.5	18.9
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: P243162

CATALOG NUMBER: S122DR-H865D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0
2.5°	1692.9	1692.3	1689.8	1678.9	1670.4	1659.4	1657.6	1655.8	1640.6	1624.2	1619.3
5°	1752.5	1741.5	1726.3	1708.1	1689.8	1669.8	1658.2	1648.5	1625.4	1599.8	1585.2
7.5°	1810.8	1789.6	1765.8	1737.3	1706.9	1674.6	1654.0	1634.5	1602.9	1569.4	1549.4
10°	1860.7	1832.1	1799.3	1761.6	1719.6	1675.8	1645.4	1615.0	1574.9	1534.2	1507.4
12.5°	1902.0	1865.6	1822.4	1771.3	1733.0	1672.8	1630.2	1590.1	1545.7	1492.8	1463.6
15°	1933.7	1897.8	1839.4	1787.7	1737.3	1657.0	1605.3	1562.7	1503.1	1451.5	1405.3
17.5°	1972.0	1920.9	1863.1	1788.9	1733.0	1641.2	1582.8	1527.5	1463.0	1402.2	1351.1
20°	1989.0	1935.5	1873.5	1790.8	1719.6	1624.2	1546.3	1492.8	1415.0	1345.1	1287.3
22.5°	1991.4	1940.4	1872.9	1785.3	1696.5	1599.2	1509.8	1439.9	1362.1	1287.9	1222.8
25°	1981.1	1932.4	1862.5	1775.6	1671.0	1572.5	1472.7	1391.9	1301.9	1225.3	1159.0
27.5°	1953.1	1913.6	1847.3	1754.3	1644.8	1531.1	1422.3	1334.1	1245.3	1158.4	1095.1
30°	1908.1	1882.0	1824.8	1726.3	1611.4	1486.1	1377.3	1274.5	1178.4	1097.0	1028.9
32.5°	1850.4	1837.6	1790.2	1692.9	1577.3	1436.9	1323.2	1217.4	1112.8	1035.5	965.6
35°	1776.8	1783.5	1743.3	1655.2	1534.2	1387.0	1259.9	1149.3	1047.1	965.0	900.6
37.5°	1681.3	1714.2	1688.6	1605.9	1478.8	1336.5	1193.6	1082.4	975.3	896.3	839.7
40°	1574.3	1632.1	1619.9	1550.6	1419.2	1277.6	1129.8	1010.0	905.4	830.6	776.5
42.5°	1448.4	1532.3	1545.7	1483.1	1360.3	1204.0	1058.0	942.5	841.6	768.0	716.3
45°	1307.4	1411.3	1456.3	1407.1	1291.5	1132.8	984.5	870.8	771.0	708.4	665.2
47.5°	1165.7	1290.9	1351.7	1328.0	1211.3	1056.8	911.5	800.2	706.0	651.2	610.5
50°	1025.8	1160.2	1249.0	1233.2	1132.2	984.5	837.9	728.5	642.1	591.7	557.0
52.5°	903.0	1030.1	1126.8	1134.7	1044.1	901.8	760.1	658.5	585.0	539.4	510.2
55°	782.0	899.9	1005.7	1025.2	951.6	814.8	688.3	592.3	525.4	487.7	464.0
57.5°	673.7	780.8	886.0	920.0	860.4	737.0	611.1	526.6	468.8	439.6	419.0
60°	581.9	678.6	769.2	803.9	763.1	650.6	540.6	465.2	417.1	391.0	374.6
62.5°	501.7	576.5	656.7	695.0	667.7	569.8	473.7	406.8	367.9	345.4	332.6
65°	429.3	487.1	550.3	594.7	564.3	491.3	411.1	353.3	320.5	299.8	290.7
67.5°	362.4	410.4	460.9	496.2	481.0	414.7	347.2	302.2	274.8	259.0	250.5
70°	301.6	337.5	378.2	405.6	394.6	343.6	290.0	254.2	231.1	220.1	212.8
72.5°	247.5	270.6	301.6	324.1	312.5	276.7	238.4	209.8	192.8	180.0	174.5
75°	196.4	216.5	238.4	253.6	244.4	217.7	187.3	165.4	153.8	145.9	142.3
77.5°	149.0	164.8	180.0	187.3	183.0	163.6	142.9	125.9	116.1	111.3	107.0
80°	107.0	116.1	126.5	133.2	130.7	117.4	102.8	89.4	85.1	79.0	77.8
82.5°	71.8	79.0	81.5	84.5	82.7	76.6	66.3	58.4	54.7	51.7	51.1
85°	42.6	44.4	47.4	47.4	45.6	41.3	35.9	33.4	29.8	29.2	27.4
87.5°	18.9	18.9	18.9	18.9	18.9	17.6	15.2	14.0	12.8	12.2	11.6
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: P243162

CATALOG NUMBER: S122DR-H865D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0	1643.0
2.5°	1615.0	1609.0	1600.4	1590.7	1582.2	1568.8	1564.6	1564.6	1567.6	1564.0	1560.9
5°	1573.1	1560.9	1548.8	1529.9	1514.1	1492.8	1486.7	1480.7	1480.0	1474.0	1466.1
7.5°	1528.1	1509.8	1484.9	1458.2	1441.1	1418.0	1405.3	1401.6	1390.0	1379.1	1366.3
10°	1475.8	1447.8	1418.0	1392.5	1365.7	1335.9	1320.7	1310.4	1298.8	1285.5	1276.3
12.5°	1412.5	1380.9	1353.6	1323.8	1301.3	1259.3	1254.4	1241.1	1218.0	1197.9	1190.6
15°	1373.6	1318.3	1287.3	1259.9	1225.9	1182.7	1166.9	1152.3	1130.4	1117.6	1107.3
17.5°	1304.9	1255.1	1216.1	1179.7	1146.8	1113.4	1089.7	1077.5	1059.9	1048.9	1038.6
20°	1242.3	1188.2	1147.4	1104.9	1070.8	1040.4	1020.3	1005.1	996.0	985.1	974.7
22.5°	1179.0	1122.5	1083.6	1040.4	1000.3	982.0	958.3	945.5	933.4	924.9	913.9
25°	1105.5	1060.5	1011.8	978.4	943.1	924.3	901.8	889.6	879.9	870.1	864.7
27.5°	1039.8	994.2	949.2	915.8	886.0	867.7	853.7	842.2	830.0	822.7	818.5
30°	971.7	929.7	890.2	858.0	834.9	814.8	806.3	795.4	786.2	783.2	776.5
32.5°	910.9	864.1	832.4	803.3	783.8	769.8	763.7	752.2	750.4	747.3	743.7
35°	850.1	809.9	779.5	754.6	738.2	727.9	720.0	716.9	713.9	710.8	707.8
37.5°	789.9	758.3	729.7	709.6	696.2	688.3	686.5	680.4	679.8	675.6	675.6
40°	735.8	703.5	683.5	667.7	656.7	653.1	648.2	647.0	645.2	643.9	646.4
42.5°	681.6	659.8	642.7	626.3	617.8	614.8	613.5	611.7	610.5	614.2	615.4
45°	631.2	612.3	597.7	586.2	581.3	577.7	577.7	579.5	578.9	580.7	580.7
47.5°	584.4	567.3	555.2	550.9	544.8	543.6	544.2	543.6	546.7	549.1	551.5
50°	540.0	524.8	515.0	510.8	509.6	507.7	510.2	511.4	513.2	515.6	516.9
52.5°	490.7	483.4	477.3	473.1	472.5	473.1	472.5	476.7	478.6	482.2	481.6
55°	448.8	443.3	439.0	434.2	433.6	435.4	436.6	440.2	442.7	445.7	445.1
57.5°	409.2	405.0	400.1	398.9	398.3	398.9	404.4	403.8	407.4	409.8	411.1
60°	366.1	363.0	358.8	358.8	360.6	361.8	363.6	366.7	370.3	369.7	374.0
62.5°	326.5	322.9	321.7	323.5	322.9	325.9	327.7	327.7	332.6	334.4	335.7
65°	287.0	285.8	284.0	284.0	285.8	286.4	289.4	291.3	293.1	296.7	299.8
67.5°	249.9	246.9	246.9	245.7	248.1	249.9	251.7	254.2	255.4	259.6	261.5
70°	211.0	209.8	209.2	210.4	210.4	212.2	215.3	218.3	220.7	221.3	225.0
72.5°	173.3	173.3	173.3	175.1	176.3	178.2	178.8	181.2	184.9	185.5	187.3
75°	139.2	139.9	139.2	139.9	140.5	142.3	143.5	145.9	148.4	149.0	150.2
77.5°	107.6	106.4	105.2	107.0	108.2	111.9	111.3	112.5	114.9	113.7	114.9
80°	75.4	77.2	74.8	78.4	78.4	77.8	79.0	80.9	80.3	81.5	80.3
82.5°	51.1	49.3	49.3	51.1	51.7	49.9	51.1	51.7	52.3	51.1	50.5
85°	28.0	27.4	28.6	26.8	27.4	26.1	26.1	24.9	26.1	24.9	23.7
87.5°	10.3	9.7	10.3	8.5	7.9	7.3	6.7	6.7	5.5	5.5	5.5
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: P243162

CATALOG NUMBER: S122DR-H865D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1643.0	1643.0	1643.0	1643.0
2.5°	1565.2	1558.5	1555.4	1557.9
5°	1457.5	1459.4	1448.4	1452.1
7.5°	1364.5	1356.6	1359.0	1354.8
10°	1266.0	1261.7	1255.1	1256.3
12.5°	1199.7	1171.1	1169.3	1163.8
15°	1106.7	1090.9	1087.2	1086.0
17.5°	1032.5	1019.1	1024.0	1020.3
20°	965.6	966.2	958.3	953.5
22.5°	906.6	905.4	902.4	897.5
25°	856.8	856.8	849.5	847.7
27.5°	811.2	812.4	806.3	806.3
30°	777.1	772.9	772.2	773.5
32.5°	743.1	738.2	738.8	738.2
35°	706.6	707.8	706.0	704.1
37.5°	675.6	675.6	675.6	673.7
40°	645.2	646.4	644.6	645.8
42.5°	614.8	615.4	615.4	612.9
45°	584.4	583.7	582.5	585.0
47.5°	552.7	552.7	552.1	553.3
50°	518.1	519.3	517.5	516.9
52.5°	482.8	483.4	482.8	484.0
55°	446.9	446.9	447.5	448.8
57.5°	409.8	414.1	411.1	413.5
60°	373.4	374.0	374.6	373.4
62.5°	338.7	338.1	338.7	340.5
65°	301.0	302.2	301.6	300.4
67.5°	263.9	262.7	264.5	262.7
70°	224.4	226.8	225.0	227.4
72.5°	188.5	187.9	189.1	186.1
75°	150.8	150.8	151.4	150.8
77.5°	115.5	114.3	113.7	111.9
80°	79.7	79.7	77.2	79.0
82.5°	48.6	49.3	49.9	46.2
85°	23.1	23.1	22.5	21.9
87.5°	4.9	4.9	5.5	6.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)