

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: P243517

Luminaire Tested: **S124DR-H1195D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243517
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-60)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124DR-H1195D935-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4254.1 lumens
Efficiency: N/A
Efficacy: 112.8 lumens/watt
Spacing Criteria (0/90/45): 1.35 / 1.22 / 1.45
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

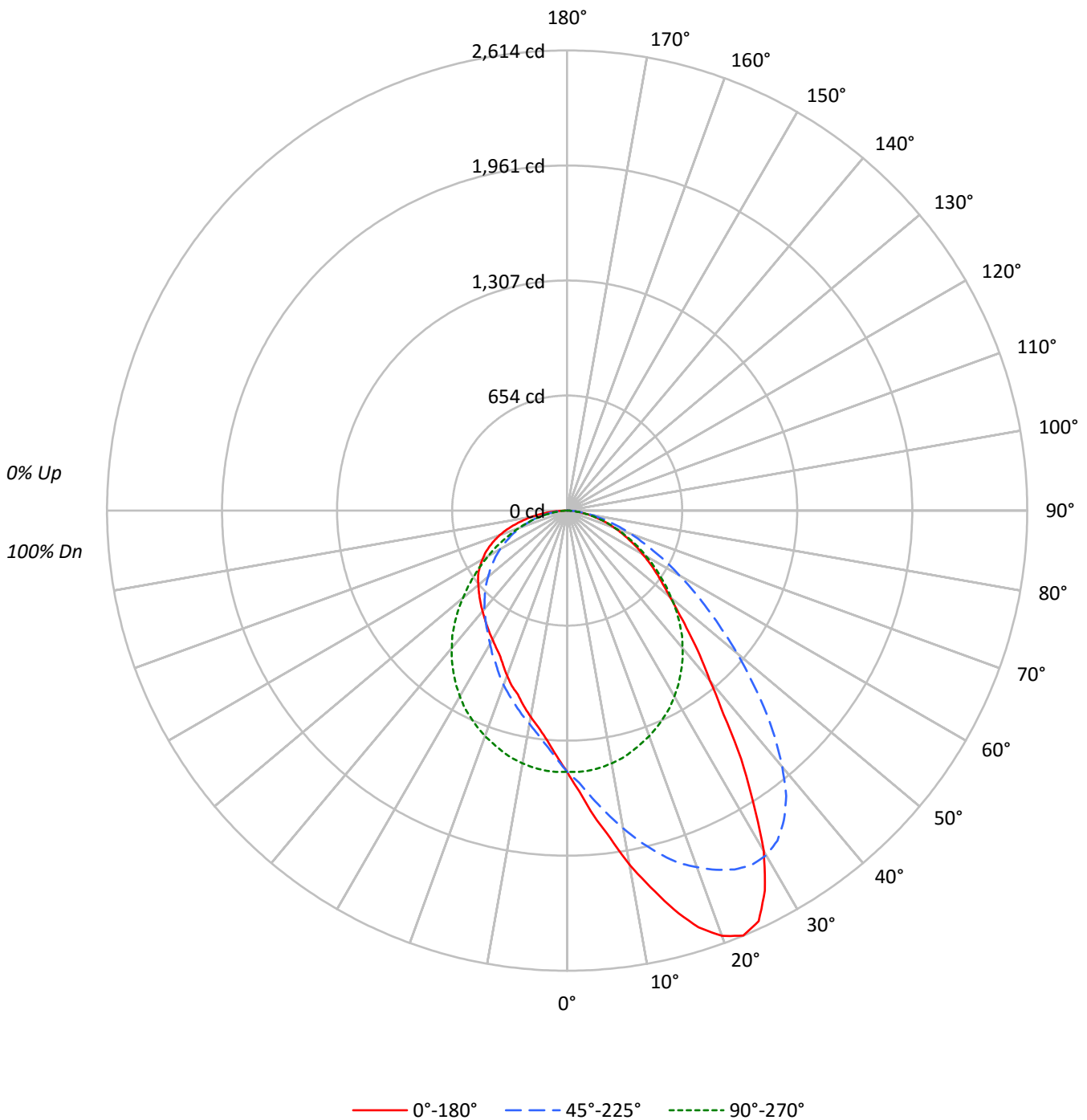
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	105	101	97	107	103	99	96	98	95	93	94	92	90	91	89	87	85
2	100	92	86	80	97	90	84	79	87	82	77	83	79	76	80	77	74	72
3	92	81	74	67	89	80	73	67	77	71	66	74	69	64	72	67	63	61
4	84	73	64	58	82	71	63	57	69	62	56	66	60	56	64	59	55	53
5	78	65	56	50	75	64	56	50	62	55	49	60	54	49	58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43	41
7	67	53	45	39	65	53	45	39	51	44	38	50	43	38	48	42	38	36
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	44	39	34	32
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	54	41	34	29	53	41	34	28	40	33	28	39	33	28	38	32	28	26

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	13188	13188	13188
5°	15518	13222	11671
10°	18441	13162	10745
15°	21599	13045	9952
20°	24322	12894	9440
25°	25241	12722	8885
30°	22923	12506	8690
35°	18701	12209	8634
40°	14644	11825	8670
45°	12255	11350	8830
50°	10518	10685	9094
55°	9610	9966	9534
60°	8805	9227	9883
65°	8075	8445	10266
70°	7428	7618	10575
75°	6615	6697	10564
80°	5518	5487	10540
85°	4202	4141	9883



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	144.4	3.4
10°-20°	447.3	10.5
20°-30°	718.5	16.9
30°-40°	821.4	19.3
40°-50°	756.1	17.8
50°-60°	618.4	14.5
60°-70°	440.8	10.4
70°-80°	242.2	5.7
80°-90°	65.1	1.5
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°	1310.2	30.8
0°-40°	2131.5	50.1
0°-60°	3506.0	82.4
0°-90°	4254.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4254.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1484	1484	1484	1484	1484	
5°	1739	1640	1482	1340	1308	175
15°	2347	2016	1418	1141	1082	669
25°	2574	2250	1297	959	906	1155
35°	1723	2147	1125	800	796	1071
45°	975	1582	903	659	702	761
55°	620	972	643	514	615	556
65°	384	539	402	360	488	383
75°	193	249	195	199	308	206
85°	41	51	41	56	97	49
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°	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6
2.5°	1597.4	1592.6	1590.2	1587.1	1586.5	1583.5	1577.5	1569.0	1558.1	1546.6	1546.6
5°	1739.1	1737.9	1728.8	1729.4	1717.9	1705.2	1695.5	1683.4	1659.8	1639.8	1625.9
7.5°	1874.8	1887.5	1884.5	1874.8	1857.8	1839.7	1820.3	1803.3	1759.7	1735.5	1715.5
10°	2043.1	2048.0	2039.5	2025.6	2010.4	1975.3	1949.9	1921.4	1874.2	1833.0	1796.7
12.5°	2190.9	2202.4	2187.2	2173.9	2138.2	2112.2	2086.7	2029.8	1980.1	1928.1	1875.4
15°	2347.1	2335.0	2342.9	2310.2	2284.7	2259.9	2195.1	2137.0	2080.7	2016.5	1961.4
17.5°	2482.8	2482.8	2468.2	2447.0	2420.4	2373.8	2309.0	2244.8	2182.4	2098.2	2020.1
20°	2571.2	2577.8	2560.9	2538.5	2506.4	2457.9	2406.5	2336.8	2253.9	2155.8	2067.3
22.5°	2613.6	2614.8	2608.7	2589.9	2563.9	2522.7	2470.0	2402.2	2314.4	2209.0	2116.4
25°	2573.6	2580.2	2578.4	2577.2	2563.9	2540.3	2497.9	2434.9	2355.0	2249.6	2149.7
27.5°	2433.1	2449.4	2463.4	2469.4	2484.0	2485.2	2472.5	2434.3	2368.9	2269.6	2158.2
30°	2233.3	2224.8	2262.3	2281.1	2330.8	2360.4	2381.6	2379.2	2341.7	2261.1	2155.1
32.5°	1966.8	1989.8	2016.5	2060.7	2119.4	2188.5	2240.5	2279.3	2275.7	2223.0	2134.6
35°	1723.4	1723.4	1757.3	1811.8	1874.2	1957.1	2044.3	2116.4	2160.6	2147.3	2084.9
37.5°	1459.4	1475.7	1514.5	1556.9	1633.2	1713.1	1828.2	1923.8	2016.5	2044.3	2012.2
40°	1262.0	1269.2	1310.4	1346.1	1424.3	1507.2	1603.5	1725.8	1832.4	1900.8	1905.1
42.5°	1115.4	1114.8	1131.8	1163.9	1226.8	1300.7	1404.9	1524.8	1649.5	1746.4	1791.8
45°	974.9	973.7	991.3	1024.0	1068.8	1134.2	1224.4	1344.3	1472.1	1582.3	1653.8
47.5°	856.2	867.1	875.0	900.5	937.4	993.1	1070.6	1166.3	1289.2	1412.7	1509.0
50°	760.6	765.4	782.4	794.5	835.7	874.4	936.8	1022.8	1128.1	1257.7	1361.9
52.5°	684.3	687.3	697.6	713.3	737.0	770.9	820.5	899.8	994.9	1107.5	1215.3
55°	620.1	618.3	624.9	635.2	655.8	684.3	720.6	781.2	864.1	972.5	1071.8
57.5°	557.1	557.1	563.2	570.4	581.9	605.5	641.3	689.1	755.7	852.0	939.8
60°	495.3	499.6	502.0	509.3	519.0	536.5	563.2	600.7	657.0	735.7	822.9
62.5°	440.8	440.8	445.1	447.5	460.2	472.9	492.3	524.4	568.6	638.9	706.7
65°	383.9	387.6	387.6	392.4	403.3	413.0	428.1	452.3	488.7	538.9	602.5
67.5°	335.5	335.5	338.5	340.9	347.0	353.6	367.0	385.7	416.6	456.6	514.1
70°	285.8	287.6	286.4	289.5	293.1	299.7	309.4	325.2	347.6	382.1	424.5
72.5°	241.0	238.6	239.8	242.8	244.6	248.9	254.9	267.0	285.2	313.1	344.0
75°	192.6	191.4	195.6	194.4	197.4	201.0	206.5	215.6	229.5	248.9	272.5
77.5°	150.2	148.4	150.2	151.4	152.6	155.6	159.9	165.3	175.0	187.7	208.9
80°	107.8	107.2	108.4	109.6	110.2	115.1	116.3	121.7	126.0	135.6	145.9
82.5°	71.5	72.7	73.3	74.5	73.9	76.3	77.5	81.1	84.8	89.6	97.5
85°	41.2	39.4	41.2	41.2	41.2	44.2	43.6	46.0	48.4	50.9	56.3
87.5°	14.5	14.5	15.1	15.7	15.7	17.6	17.0	18.2	20.6	20.6	22.4
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°	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6
2.5°	1542.9	1536.3	1531.4	1517.5	1509.0	1501.2	1493.9	1486.0	1477.5	1466.6	1460.0
5°	1611.4	1596.8	1575.6	1556.3	1534.5	1515.1	1499.3	1481.8	1462.4	1442.4	1424.9
7.5°	1687.1	1659.8	1627.1	1591.4	1557.5	1529.0	1499.3	1471.5	1444.2	1417.6	1392.8
10°	1762.8	1715.5	1672.5	1623.5	1578.7	1535.7	1496.9	1458.2	1424.3	1389.1	1357.6
12.5°	1833.0	1776.1	1713.1	1651.9	1592.0	1536.3	1488.4	1441.2	1397.6	1355.8	1318.9
15°	1886.9	1815.4	1741.0	1668.3	1599.3	1541.1	1478.8	1417.6	1372.2	1321.3	1280.7
17.5°	1948.7	1863.9	1790.0	1702.8	1616.8	1523.0	1457.0	1390.3	1335.8	1286.8	1246.2
20°	1989.8	1896.6	1790.0	1691.3	1602.9	1518.7	1439.4	1363.1	1305.6	1248.6	1199.6
22.5°	2022.5	1926.3	1808.8	1705.8	1595.0	1493.3	1407.3	1332.2	1264.4	1210.5	1163.9
25°	2039.5	1922.0	1810.0	1685.2	1574.4	1476.9	1380.0	1297.1	1228.7	1168.7	1128.7
27.5°	2040.1	1919.6	1787.0	1663.4	1544.8	1439.4	1343.7	1262.0	1185.1	1127.5	1079.7
30°	2037.1	1903.8	1764.0	1628.9	1510.8	1403.1	1303.1	1218.4	1148.1	1087.0	1041.5
32.5°	2017.7	1882.0	1729.4	1587.8	1459.4	1351.0	1258.9	1174.8	1099.7	1044.0	996.1
35°	1974.1	1834.2	1681.0	1535.1	1413.4	1300.7	1209.9	1125.1	1057.9	997.3	948.3
37.5°	1918.4	1787.6	1632.0	1479.4	1348.0	1241.4	1156.0	1076.1	1005.8	950.1	901.1
40°	1848.1	1725.2	1572.0	1413.4	1281.9	1174.2	1093.6	1019.1	959.2	902.3	854.4
42.5°	1751.9	1657.4	1499.9	1345.5	1208.1	1106.3	1028.2	966.5	904.7	853.2	805.4
45°	1648.9	1562.9	1423.0	1269.8	1137.8	1033.1	959.8	902.9	850.2	798.1	759.4
47.5°	1535.1	1464.8	1335.2	1185.7	1055.5	962.8	890.8	839.9	791.5	751.5	712.7
50°	1399.4	1362.5	1241.4	1105.7	979.2	884.1	824.8	772.7	737.0	698.2	661.9
52.5°	1273.5	1243.8	1145.1	1011.9	896.8	813.3	749.7	708.5	673.4	644.9	615.8
55°	1136.6	1121.5	1037.9	922.9	818.7	735.1	680.6	643.1	615.2	588.6	567.4
57.5°	1010.7	1009.5	935.6	836.9	735.1	664.3	612.2	581.3	557.1	538.3	520.2
60°	881.7	892.0	831.4	741.2	660.7	594.0	546.8	519.0	502.6	485.0	469.9
62.5°	764.8	780.6	725.4	654.6	575.3	520.8	484.4	463.2	445.1	432.4	420.9
65°	652.8	672.8	628.0	564.4	503.8	452.3	421.5	401.5	387.6	380.3	372.4
67.5°	554.1	565.0	534.7	485.0	434.8	390.0	364.5	347.0	334.9	331.8	322.8
70°	455.4	468.1	446.9	401.5	362.7	330.0	307.0	293.1	285.8	281.6	275.5
72.5°	376.0	381.5	360.3	328.8	297.9	270.7	253.7	243.4	235.0	233.1	230.1
75°	294.3	302.2	285.2	261.0	235.6	216.2	203.5	195.0	190.7	187.7	187.7
77.5°	222.2	228.9	219.2	198.0	182.9	165.9	157.4	149.6	147.8	144.7	145.9
80°	158.0	161.1	155.6	141.1	127.8	118.7	111.4	107.2	106.6	104.2	106.6
82.5°	104.8	105.4	99.3	92.6	82.4	77.5	72.7	70.8	70.2	70.2	69.0
85°	58.1	59.3	55.1	50.9	47.2	43.0	41.8	40.6	39.4	41.2	42.4
87.5°	22.4	23.0	22.4	20.6	19.4	18.2	17.6	18.8	17.0	18.2	18.8
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°	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6	1483.6
2.5°	1449.7	1444.8	1437.6	1425.5	1417.0	1407.9	1404.3	1405.5	1401.8	1397.0	1398.2
5°	1411.5	1397.6	1385.5	1368.5	1352.8	1339.5	1335.2	1329.8	1324.9	1321.9	1318.9
7.5°	1371.0	1351.6	1333.4	1316.5	1298.3	1281.3	1274.7	1269.8	1267.4	1258.9	1255.3
10°	1332.2	1309.8	1288.0	1268.0	1249.2	1230.5	1223.8	1217.8	1209.3	1205.6	1201.4
12.5°	1291.0	1268.6	1245.0	1220.8	1202.0	1186.9	1175.4	1171.1	1162.7	1159.0	1156.6
15°	1251.1	1223.8	1205.0	1186.3	1157.8	1140.9	1136.0	1120.9	1116.0	1108.8	1103.9
17.5°	1211.1	1185.7	1157.8	1136.0	1118.4	1097.3	1085.7	1079.1	1070.0	1063.3	1054.3
20°	1171.7	1142.1	1120.3	1093.0	1073.6	1054.3	1039.7	1033.7	1025.8	1016.7	1004.0
22.5°	1133.6	1100.9	1079.7	1054.3	1030.0	1007.6	995.5	987.0	971.3	969.5	958.0
25°	1088.8	1059.7	1031.9	1005.2	981.6	959.2	951.3	938.0	932.5	921.6	919.8
27.5°	1046.4	1015.5	985.2	956.2	935.6	919.8	905.9	897.4	892.0	883.5	884.1
30°	1002.2	968.3	939.8	913.2	890.8	875.6	866.5	862.3	854.4	853.2	849.0
32.5°	955.0	924.1	894.4	870.8	847.8	834.4	830.2	826.0	821.1	821.7	820.5
35°	907.7	880.5	849.0	827.2	808.4	800.5	793.9	792.7	790.8	792.1	792.1
37.5°	861.7	832.0	806.0	786.0	775.1	764.2	761.2	760.6	761.2	762.4	765.4
40°	816.9	789.6	764.2	747.9	735.7	730.9	726.7	728.5	730.9	735.1	738.8
42.5°	772.1	746.0	724.8	708.5	697.0	694.6	695.2	698.8	699.4	705.5	712.1
45°	724.8	702.4	682.5	669.7	662.5	659.4	660.7	664.3	668.5	677.0	685.5
47.5°	681.2	661.3	643.7	631.0	625.5	624.3	626.7	631.6	641.3	649.8	659.4
50°	637.0	618.9	602.5	591.0	590.4	586.2	591.6	597.7	609.2	620.7	635.2
52.5°	593.4	575.9	561.9	552.9	550.4	550.4	557.1	568.0	578.3	593.4	606.8
55°	548.0	532.3	519.0	515.9	512.3	514.1	521.4	532.3	546.8	563.8	578.3
57.5°	501.4	488.1	478.4	474.1	472.3	478.4	486.9	498.4	517.1	534.1	549.8
60°	457.2	445.7	435.4	434.2	433.0	440.8	451.1	463.2	482.0	499.0	518.4
62.5°	410.0	400.9	394.2	392.4	392.4	400.3	411.8	427.5	445.1	463.2	483.8
65°	362.1	354.2	352.4	350.0	355.5	360.3	371.8	386.9	405.7	425.7	447.5
67.5°	317.9	313.1	309.4	309.4	313.7	322.8	333.1	348.2	367.6	388.8	408.1
70°	273.7	268.9	265.8	268.9	271.3	282.2	293.1	307.6	325.8	346.4	367.0
72.5°	227.7	228.3	228.9	228.3	230.7	241.0	251.9	265.8	283.4	303.4	322.2
75°	187.1	184.1	184.7	185.9	193.8	199.2	210.1	223.4	242.2	260.4	276.1
77.5°	145.3	144.1	147.1	147.1	154.4	161.1	170.2	183.5	199.8	216.2	228.9
80°	106.6	107.2	109.6	110.2	116.3	123.5	133.2	142.3	156.8	168.3	180.5
82.5°	72.1	73.3	76.3	80.5	83.0	87.2	95.7	105.4	115.7	127.8	135.0
85°	41.8	43.6	46.0	49.0	51.5	55.7	61.8	69.6	76.9	83.6	89.6
87.5°	20.6	20.6	22.4	23.6	25.4	27.9	32.1	35.1	40.0	44.8	47.2
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: P243517

CATALOG NUMBER: S124DR-H1195D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1483.6	1483.6	1483.6	1483.6
2.5°	1395.8	1395.2	1392.8	1394.0
5°	1317.1	1311.0	1310.4	1308.0
7.5°	1249.2	1247.4	1247.4	1242.6
10°	1197.2	1191.7	1192.9	1190.5
12.5°	1147.5	1144.5	1140.9	1137.2
15°	1091.8	1091.8	1091.8	1081.5
17.5°	1048.2	1047.6	1044.6	1044.0
20°	1002.8	1000.4	992.5	997.9
22.5°	956.8	955.0	948.3	949.5
25°	913.8	912.0	910.7	905.9
27.5°	876.8	877.4	878.7	875.6
30°	849.0	847.2	849.6	846.6
32.5°	822.9	822.9	820.5	821.1
35°	793.3	795.7	796.3	795.7
37.5°	767.2	770.3	772.7	770.3
40°	743.0	745.4	747.9	747.2
42.5°	717.6	721.8	723.6	725.4
45°	693.4	698.8	701.8	702.4
47.5°	668.5	675.2	681.2	680.6
50°	644.3	652.8	658.2	657.6
52.5°	620.1	628.6	635.2	638.2
55°	592.8	603.7	609.8	615.2
57.5°	565.6	577.7	583.7	586.2
60°	535.3	546.2	554.1	555.9
62.5°	501.4	512.9	523.2	525.6
65°	466.3	479.0	486.9	488.1
67.5°	425.7	437.8	445.7	449.3
70°	383.9	393.0	401.5	406.9
72.5°	337.3	348.2	356.1	359.7
75°	288.8	301.0	305.2	307.6
77.5°	238.6	245.9	252.5	253.1
80°	188.3	197.4	199.8	205.9
82.5°	138.7	147.1	145.3	147.8
85°	91.4	94.5	96.3	96.9
87.5°	48.4	50.3	51.5	52.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)