

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: P243492

Luminaire Tested: **S124DR-H1195D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243492
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-H1195D927-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 2700K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3914.0 lumens
Efficiency: N/A
Efficacy: 103.8 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

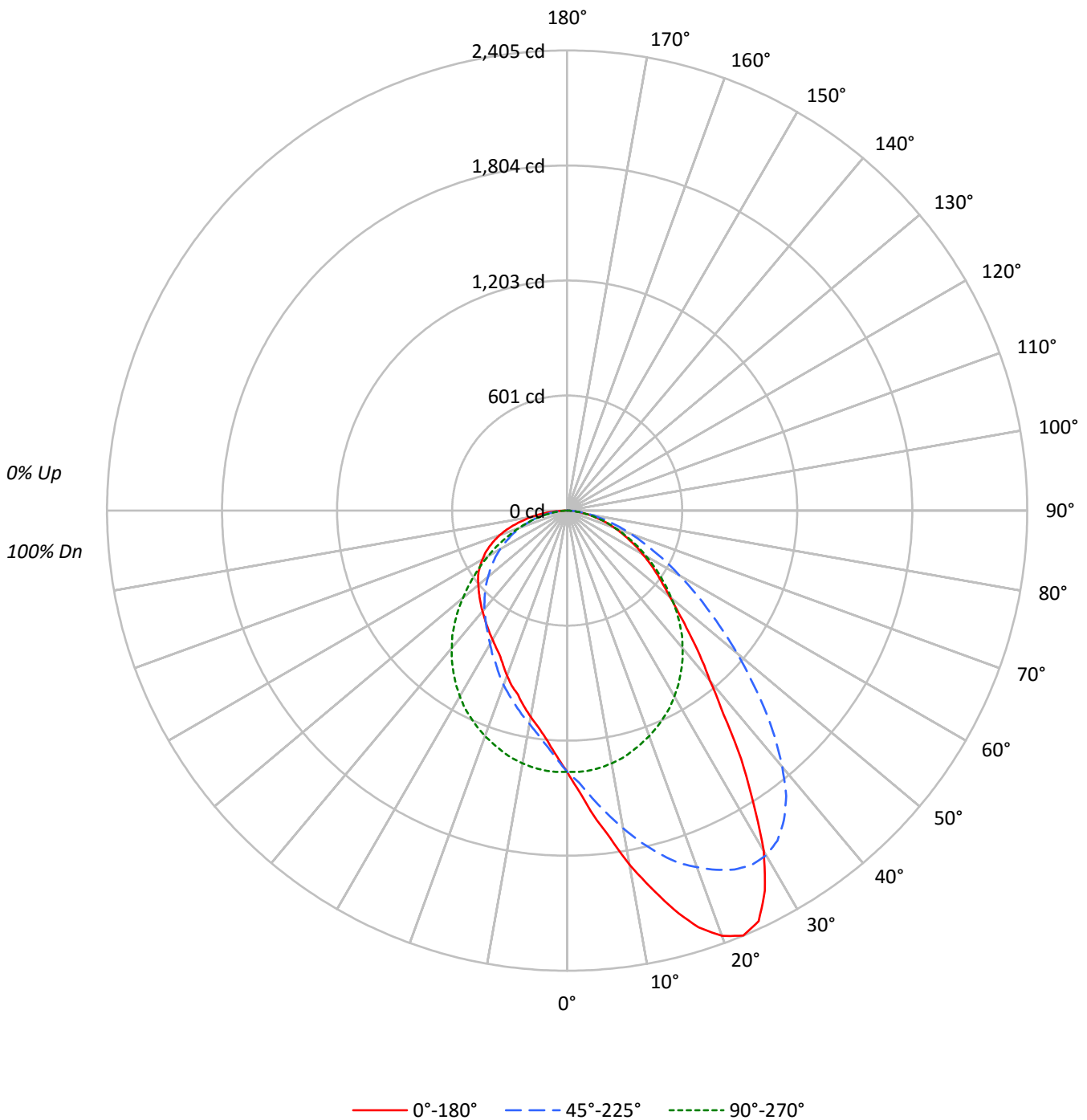
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	12133	12133	12133
5°	14277	12165	10738
10°	16967	12109	9887
15°	19873	12003	9157
20°	22378	11863	8686
25°	23224	11705	8175
30°	21091	11506	7995
35°	17206	11233	7944
40°	13473	10881	7978
45°	11276	10443	8125
50°	9677	9831	8368
55°	8841	9170	8773
60°	8101	8489	9093
65°	7429	7770	9446
70°	6835	7009	9730
75°	6086	6161	9719
80°	5078	5047	9695
85°	3865	3804	9087



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	132.9	3.4
10°-20°	411.5	10.5
20°-30°	661.1	16.9
30°-40°	755.7	19.3
40°-50°	695.6	17.8
50°-60°	569.0	14.5
60°-70°	405.5	10.4
70°-80°	222.8	5.7
80°-90°	59.9	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°	1205.5	30.8
0°-40°	1961.2	50.1
0°-60°	3225.8	82.4
0°-90°	3914.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3914.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1365	1365	1365	1365	1365	
5°	1600	1509	1363	1232	1203	161
15°	2160	1855	1304	1050	995	616
25°	2368	2070	1193	882	834	1063
35°	1586	1976	1035	737	732	985
45°	897	1456	831	607	646	700
55°	570	895	592	473	566	512
65°	353	496	369	332	449	353
75°	177	229	179	183	283	189
85°	38	47	37	51	89	45
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°	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0
2.5°	1469.8	1465.3	1463.1	1460.3	1459.7	1456.9	1451.4	1443.6	1433.5	1423.0	1423.0
5°	1600.1	1599.0	1590.7	1591.2	1580.6	1568.9	1560.0	1548.9	1527.1	1508.8	1495.9
7.5°	1724.9	1736.6	1733.8	1724.9	1709.3	1692.6	1674.8	1659.2	1619.1	1596.8	1578.4
10°	1879.8	1884.3	1876.5	1863.7	1849.7	1817.4	1794.0	1767.8	1724.4	1686.5	1653.1
12.5°	2015.8	2026.4	2012.4	2000.2	1967.3	1943.3	1919.9	1867.6	1821.9	1774.0	1725.5
15°	2159.5	2148.4	2155.6	2125.5	2102.1	2079.3	2019.7	1966.2	1914.4	1855.3	1804.6
17.5°	2284.3	2284.3	2270.9	2251.4	2226.9	2184.0	2124.4	2065.4	2008.0	1930.5	1858.6
20°	2365.7	2371.8	2356.2	2335.6	2306.0	2261.5	2214.1	2150.0	2073.7	1983.5	1902.1
22.5°	2404.7	2405.8	2400.2	2382.9	2359.0	2321.1	2272.6	2210.2	2129.4	2032.5	1947.2
25°	2367.9	2374.0	2372.3	2371.2	2359.0	2337.2	2298.2	2240.3	2166.8	2069.8	1977.9
27.5°	2238.6	2253.7	2266.5	2272.1	2285.4	2286.5	2274.8	2239.7	2179.6	2088.2	1985.7
30°	2054.8	2047.0	2081.5	2098.8	2144.5	2171.8	2191.3	2189.0	2154.5	2080.4	1982.9
32.5°	1809.6	1830.8	1855.3	1896.0	1950.0	2013.5	2061.5	2097.1	2093.8	2045.3	1964.0
35°	1585.6	1585.6	1616.8	1667.0	1724.4	1800.7	1880.9	1947.2	1987.9	1975.7	1918.3
37.5°	1342.7	1357.8	1393.4	1432.4	1502.6	1576.2	1682.0	1770.1	1855.3	1880.9	1851.4
40°	1161.1	1167.8	1205.7	1238.5	1310.4	1386.7	1475.3	1587.9	1685.9	1748.9	1752.8
42.5°	1026.3	1025.7	1041.3	1070.8	1128.8	1196.8	1292.6	1402.9	1517.7	1606.8	1648.6
45°	897.0	895.9	912.1	942.1	983.4	1043.5	1126.6	1236.9	1354.4	1455.8	1521.6
47.5°	787.8	797.8	805.1	828.5	862.5	913.7	985.0	1073.1	1186.2	1299.8	1388.4
50°	699.8	704.2	719.8	731.0	768.9	804.5	861.9	941.0	1038.0	1157.2	1253.0
52.5°	629.6	632.4	641.8	656.3	678.1	709.3	754.9	827.9	915.4	1019.0	1118.2
55°	570.5	568.8	575.0	584.4	603.4	629.6	663.0	718.7	795.1	894.8	986.2
57.5°	512.6	512.6	518.1	524.8	535.4	557.1	590.0	634.0	695.3	783.9	864.7
60°	455.7	459.6	461.9	468.6	477.5	493.6	518.1	552.7	604.5	676.9	757.2
62.5°	405.6	405.6	409.5	411.7	423.4	435.1	453.0	482.5	523.2	587.8	650.2
65°	353.2	356.6	356.6	361.0	371.1	380.0	393.9	416.2	449.6	495.9	554.4
67.5°	308.7	308.7	311.4	313.7	319.2	325.4	337.6	354.9	383.3	420.1	473.0
70°	263.0	264.6	263.5	266.3	269.7	275.8	284.7	299.2	319.8	351.6	390.6
72.5°	221.7	219.5	220.6	223.4	225.1	229.0	234.6	245.7	262.4	288.0	316.5
75°	177.2	176.1	180.0	178.8	181.6	185.0	190.0	198.3	211.2	229.0	250.7
77.5°	138.2	136.5	138.2	139.3	140.4	143.2	147.1	152.1	161.0	172.7	192.2
80°	99.2	98.6	99.7	100.8	101.4	105.9	107.0	112.0	115.9	124.8	134.3
82.5°	65.7	66.9	67.4	68.5	68.0	70.2	71.3	74.7	78.0	82.5	89.7
85°	37.9	36.2	37.9	37.9	37.9	40.7	40.1	42.3	44.6	46.8	51.8
87.5°	13.4	13.4	13.9	14.5	14.5	16.2	15.6	16.7	18.9	18.9	20.6
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°	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0
2.5°	1419.6	1413.5	1409.0	1396.2	1388.4	1381.2	1374.5	1367.2	1359.4	1349.4	1343.3
5°	1482.6	1469.2	1449.7	1431.9	1411.8	1394.0	1379.5	1363.3	1345.5	1327.1	1311.0
7.5°	1552.2	1527.1	1497.1	1464.2	1433.0	1406.8	1379.5	1353.9	1328.8	1304.3	1281.4
10°	1621.9	1578.4	1538.8	1493.7	1452.5	1412.9	1377.3	1341.6	1310.4	1278.1	1249.1
12.5°	1686.5	1634.1	1576.2	1519.9	1464.7	1413.5	1369.5	1326.0	1285.9	1247.5	1213.5
15°	1736.1	1670.3	1601.8	1534.9	1471.4	1417.9	1360.6	1304.3	1262.5	1215.7	1178.4
17.5°	1792.9	1714.9	1646.9	1566.7	1487.6	1401.2	1340.5	1279.2	1229.1	1183.9	1146.6
20°	1830.8	1745.0	1646.9	1556.1	1474.8	1397.3	1324.3	1254.1	1201.2	1148.8	1103.7
22.5°	1860.9	1772.3	1664.2	1569.5	1467.5	1373.9	1294.8	1225.7	1163.3	1113.7	1070.8
25°	1876.5	1768.4	1665.3	1550.5	1448.6	1358.9	1269.7	1193.4	1130.5	1075.3	1038.5
27.5°	1877.0	1766.2	1644.1	1530.5	1421.3	1324.3	1236.3	1161.1	1090.3	1037.4	993.4
30°	1874.2	1751.7	1623.0	1498.7	1390.1	1290.9	1199.0	1121.0	1056.4	1000.1	958.3
32.5°	1856.4	1731.6	1591.2	1460.8	1342.7	1243.0	1158.3	1080.9	1011.8	960.5	916.5
35°	1816.3	1687.6	1546.6	1412.4	1300.4	1196.8	1113.2	1035.2	973.3	917.6	872.5
37.5°	1765.0	1644.7	1501.5	1361.1	1240.2	1142.2	1063.6	990.1	925.4	874.2	829.0
40°	1700.4	1587.3	1446.4	1300.4	1179.5	1080.3	1006.2	937.7	882.5	830.2	786.1
42.5°	1611.8	1524.9	1380.1	1238.0	1111.5	1017.9	946.0	889.2	832.4	785.0	741.0
45°	1517.1	1438.0	1309.3	1168.3	1046.9	950.5	883.1	830.7	782.2	734.3	698.7
47.5°	1412.4	1347.7	1228.5	1090.9	971.1	885.9	819.6	772.8	728.2	691.4	655.8
50°	1287.6	1253.6	1142.2	1017.4	900.9	813.4	758.8	710.9	678.1	642.4	609.0
52.5°	1171.7	1144.4	1053.6	931.0	825.1	748.3	689.8	651.9	619.5	593.4	566.6
55°	1045.8	1031.8	955.0	849.1	753.3	676.4	626.2	591.7	566.1	541.5	522.0
57.5°	929.9	928.8	860.8	770.0	676.4	611.2	563.3	534.9	512.6	495.3	478.6
60°	811.2	820.7	765.0	682.0	607.8	546.6	503.1	477.5	462.4	446.3	432.3
62.5°	703.7	718.2	667.5	602.3	529.3	479.1	445.7	426.2	409.5	397.8	387.2
65°	600.6	619.0	577.8	519.3	463.5	416.2	387.8	369.4	356.6	349.9	342.6
67.5°	509.8	519.8	492.0	446.3	400.0	358.8	335.4	319.2	308.1	305.3	297.0
70°	419.0	430.7	411.2	369.4	333.7	303.6	282.5	269.7	263.0	259.1	253.5
72.5°	346.0	351.0	331.5	302.5	274.1	249.0	233.4	224.0	216.2	214.5	211.7
75°	270.8	278.0	262.4	240.1	216.7	198.9	187.2	179.4	175.5	172.7	172.7
77.5°	204.5	210.6	201.7	182.2	168.3	152.7	144.9	137.6	135.9	133.2	134.3
80°	145.4	148.2	143.2	129.8	117.6	109.2	102.5	98.6	98.1	95.8	98.1
82.5°	96.4	96.9	91.4	85.2	75.8	71.3	66.9	65.2	64.6	64.6	63.5
85°	53.5	54.6	50.7	46.8	43.5	39.6	38.4	37.3	36.2	37.9	39.0
87.5°	20.6	21.2	20.6	18.9	17.8	16.7	16.2	17.3	15.6	16.7	17.3
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°	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0	1365.0
2.5°	1333.8	1329.4	1322.7	1311.5	1303.7	1295.4	1292.0	1293.1	1289.8	1285.3	1286.5
5°	1298.7	1285.9	1274.8	1259.2	1244.7	1232.4	1228.5	1223.5	1219.0	1216.3	1213.5
7.5°	1261.4	1243.6	1226.8	1211.2	1194.5	1178.9	1172.8	1168.3	1166.1	1158.3	1155.0
10°	1225.7	1205.1	1185.1	1166.7	1149.4	1132.1	1126.0	1120.4	1112.6	1109.3	1105.4
12.5°	1187.8	1167.2	1145.5	1123.2	1105.9	1092.0	1081.4	1077.5	1069.7	1066.4	1064.2
15°	1151.1	1126.0	1108.7	1091.5	1065.3	1049.7	1045.2	1031.3	1026.8	1020.1	1015.7
17.5°	1114.3	1090.9	1065.3	1045.2	1029.1	1009.6	999.0	992.8	984.5	978.4	970.0
20°	1078.1	1050.8	1030.7	1005.7	987.8	970.0	956.6	951.1	943.8	935.5	923.8
22.5°	1043.0	1012.9	993.4	970.0	947.7	927.1	916.0	908.2	893.7	892.0	881.4
25°	1001.8	975.0	949.4	924.9	903.1	882.5	875.3	863.0	858.0	848.0	846.3
27.5°	962.8	934.3	906.5	879.7	860.8	846.3	833.5	825.7	820.7	812.9	813.4
30°	922.1	890.9	864.7	840.2	819.6	805.6	797.3	793.4	786.1	785.0	781.1
32.5°	878.6	850.2	822.9	801.2	780.0	767.8	763.9	760.0	755.5	756.1	754.9
35°	835.2	810.1	781.1	761.1	743.8	736.6	730.4	729.3	727.6	728.8	728.8
37.5°	792.8	765.5	741.6	723.2	713.2	703.1	700.3	699.8	700.3	701.5	704.2
40°	751.6	726.5	703.1	688.1	676.9	672.5	668.6	670.3	672.5	676.4	679.7
42.5°	710.4	686.4	666.9	651.9	641.3	639.1	639.6	643.0	643.5	649.1	655.2
45°	666.9	646.3	627.9	616.2	609.5	606.7	607.8	611.2	615.1	622.9	630.7
47.5°	626.8	608.4	592.2	580.5	575.5	574.4	576.6	581.1	590.0	597.8	606.7
50°	586.1	569.4	554.4	543.8	543.2	539.3	544.3	549.9	560.5	571.1	584.4
52.5°	546.0	529.8	517.0	508.7	506.4	506.4	512.6	522.6	532.1	546.0	558.3
55°	504.2	489.7	477.5	474.7	471.3	473.0	479.7	489.7	503.1	518.7	532.1
57.5°	461.3	449.1	440.1	436.2	434.6	440.1	447.9	458.5	475.8	491.4	505.9
60°	420.6	410.1	400.6	399.5	398.4	405.6	415.1	426.2	443.5	459.1	476.9
62.5°	377.2	368.8	362.7	361.0	361.0	368.3	378.9	393.3	409.5	426.2	445.2
65°	333.2	325.9	324.3	322.0	327.0	331.5	342.1	356.0	373.3	391.7	411.7
67.5°	292.5	288.0	284.7	284.7	288.6	297.0	306.4	320.4	338.2	357.7	375.5
70°	251.8	247.4	244.6	247.4	249.6	259.6	269.7	283.0	299.7	318.7	337.6
72.5°	209.5	210.0	210.6	210.0	212.3	221.7	231.8	244.6	260.7	279.1	296.4
75°	172.2	169.4	169.9	171.0	178.3	183.3	193.3	205.6	222.9	239.6	254.1
77.5°	133.7	132.6	135.4	135.4	142.1	148.2	156.6	168.8	183.9	198.9	210.6
80°	98.1	98.6	100.8	101.4	107.0	113.7	122.6	130.9	144.3	154.9	166.0
82.5°	66.3	67.4	70.2	74.1	76.3	80.2	88.0	96.9	106.4	117.6	124.2
85°	38.4	40.1	42.3	45.1	47.4	51.3	56.8	64.1	70.8	76.9	82.5
87.5°	18.9	18.9	20.6	21.7	23.4	25.6	29.5	32.3	36.8	41.2	43.5
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: P243492

CATALOG NUMBER: S124DR-H1195D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1365.0	1365.0	1365.0	1365.0
2.5°	1284.2	1283.7	1281.4	1282.6
5°	1211.8	1206.2	1205.7	1203.4
7.5°	1149.4	1147.7	1147.7	1143.3
10°	1101.5	1096.5	1097.6	1095.4
12.5°	1055.8	1053.0	1049.7	1046.3
15°	1004.5	1004.5	1004.5	995.1
17.5°	964.4	963.9	961.1	960.5
20°	922.6	920.4	913.2	918.2
22.5°	880.3	878.6	872.5	873.6
25°	840.7	839.1	838.0	833.5
27.5°	806.8	807.3	808.4	805.6
30°	781.1	779.5	781.7	778.9
32.5°	757.2	757.2	754.9	755.5
35°	729.9	732.1	732.7	732.1
37.5°	705.9	708.7	710.9	708.7
40°	683.6	685.9	688.1	687.5
42.5°	660.2	664.1	665.8	667.5
45°	637.9	643.0	645.7	646.3
47.5°	615.1	621.2	626.8	626.2
50°	592.8	600.6	605.6	605.1
52.5°	570.5	578.3	584.4	587.2
55°	545.4	555.5	561.0	566.1
57.5°	520.4	531.5	537.1	539.3
60°	492.5	502.5	509.8	511.5
62.5°	461.3	471.9	481.4	483.6
65°	429.0	440.7	447.9	449.1
67.5°	391.7	402.8	410.1	413.4
70°	353.2	361.6	369.4	374.4
72.5°	310.3	320.4	327.6	330.9
75°	265.8	276.9	280.8	283.0
77.5°	219.5	226.2	232.3	232.9
80°	173.3	181.6	183.9	189.4
82.5°	127.6	135.4	133.7	135.9
85°	84.1	86.9	88.6	89.1
87.5°	44.6	46.2	47.4	47.9
90°	0.0	0.0	0.0	0.0

(END OF REPORT)