

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: P242647

Luminaire Tested: **S124DR-S1195D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242647
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-21)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124DR-S1195D840-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4984.9 lumens
Efficiency: N/A
Efficacy: 121.3 lumens/watt
Spacing Criteria (0/90/45): 1.3 / 1.22 / 1.41
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

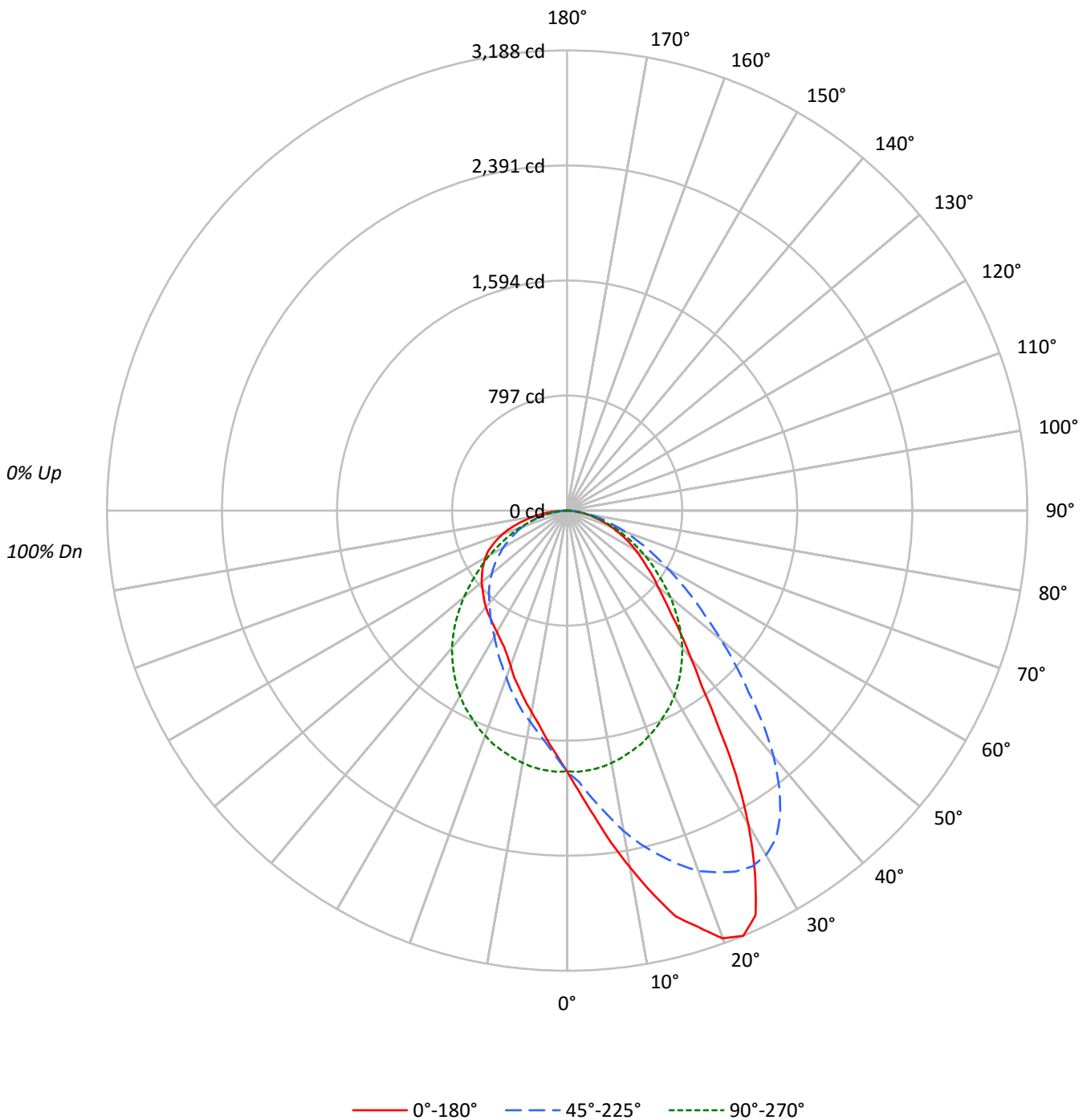
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P242647

CATALOG NUMBER: S124DR-S1195D840-X4F0-XX-UDD-A-W

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	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	109	105	101	97	107	103	99	96	98	95	93	95	92	90	91	89	87	85					85			
2	100	92	86	80	98	90	84	79	87	82	78	84	79	76	81	77	74	72					72			
3	92	82	74	68	89	80	73	67	77	71	66	74	69	65	72	67	64	62					62			
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53					53			
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46					46			
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41					41			
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36					36			
8	62	49	41	35	61	49	41	35	47	40	35	46	40	35	45	39	35	33					33			
9	58	45	37	32	57	45	37	32	44	37	32	43	36	32	42	36	31	30					30			
10	55	42	34	29	54	41	34	29	40	34	29	39	33	29	39	33	29	27					27			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	16058	16058	16058
5°	18910	16100	14210
10°	22642	16028	12794
15°	26789	15867	11749
20°	29831	15701	10817
25°	30313	15457	10173
30°	25794	15224	9970
35°	19831	14845	9972
40°	15457	14398	10160
45°	12888	13725	10329
50°	11342	12905	10680
55°	10391	11922	11110
60°	9739	11042	11628
65°	9067	10058	12056
70°	8285	9083	12332
75°	7401	7992	12182
80°	6204	6552	11799
85°	4579	4732	11300



TEST NUMBER: P242647

CATALOG NUMBER: S124DR-S1195D840-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	175.8	3.5
10°-20°	542.7	10.9
20°-30°	862.1	17.3
30°-40°	957.9	19.2
40°-50°	871.2	17.5
50°-60°	711.9	14.3
60°-70°	508.2	10.2
70°-80°	279.6	5.6
80°-90°	75.5	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°	1580.6	31.7
0°-40°	2538.5	50.9
0°-60°	4121.6	82.7
0°-90°	4984.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4984.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1806	1806	1806	1806	1806	
5°	2119	2002	1804	1622	1592	214
15°	2911	2470	1724	1359	1277	823
25°	3091	2759	1576	1117	1037	1371
35°	1828	2574	1368	923	919	1157
45°	1025	1777	1092	765	822	806
55°	670	1069	769	598	717	605
65°	431	596	478	415	573	427
75°	216	278	233	231	355	229
85°	45	58	46	66	111	55
90°	0	0	0	0	0	



TEST NUMBER: P242647

CATALOG NUMBER: S124DR-S1195D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5
2.5°	1951.7	1951.0	1943.5	1942.0	1936.7	1930.0	1928.5	1916.5	1892.6	1881.4	1878.4
5°	2119.3	2134.3	2114.8	2111.1	2108.9	2084.2	2071.4	2056.5	2022.1	2001.8	1986.1
7.5°	2315.4	2316.2	2307.9	2299.7	2285.5	2264.5	2236.1	2203.2	2163.5	2123.1	2094.6
10°	2508.5	2514.5	2504.7	2503.2	2465.1	2441.1	2393.2	2352.8	2306.4	2254.8	2207.6
12.5°	2712.0	2700.1	2696.3	2656.7	2657.4	2608.8	2551.1	2509.2	2431.4	2370.0	2303.4
15°	2911.1	2894.6	2884.2	2840.0	2818.3	2757.7	2698.6	2652.9	2559.4	2470.3	2403.0
17.5°	3026.3	3046.5	3019.6	3001.6	2942.5	2902.9	2843.7	2750.2	2680.6	2569.8	2492.8
20°	3153.6	3155.1	3141.6	3122.9	3078.7	3024.8	2959.0	2854.2	2766.7	2656.7	2539.9
22.5°	3188.0	3188.0	3184.2	3167.0	3136.4	3095.2	3028.6	2945.5	2834.8	2712.8	2596.0
25°	3090.7	3087.7	3094.4	3113.9	3101.2	3087.7	3049.5	2984.4	2885.7	2759.2	2633.5
27.5°	2815.3	2834.8	2875.2	2923.1	2957.5	2988.2	2985.9	2958.2	2887.9	2778.6	2644.7
30°	2513.0	2538.4	2566.9	2614.7	2707.5	2760.7	2819.0	2863.2	2838.5	2755.4	2632.7
32.5°	2180.7	2182.2	2227.8	2284.0	2367.0	2481.5	2582.6	2683.6	2727.0	2693.3	2596.0
35°	1827.5	1838.0	1883.6	1937.5	2041.5	2166.5	2305.7	2429.9	2532.4	2573.6	2521.2
37.5°	1531.1	1564.1	1598.5	1659.8	1754.9	1867.9	2017.6	2172.5	2322.9	2414.2	2423.9
40°	1332.1	1350.8	1374.0	1418.1	1496.0	1606.7	1730.9	1915.0	2077.4	2224.1	2272.0
42.5°	1174.9	1183.9	1195.9	1234.8	1289.4	1399.4	1510.2	1666.6	1829.7	2012.3	2100.6
45°	1025.2	1036.5	1060.4	1083.6	1128.5	1204.8	1310.4	1443.6	1607.5	1776.6	1924.8
47.5°	913.0	920.5	935.4	960.9	1001.3	1052.9	1142.7	1255.7	1415.9	1579.8	1738.4
50°	820.2	826.2	837.4	859.9	889.0	933.9	1004.3	1108.3	1227.3	1392.7	1547.6
52.5°	746.9	748.4	755.8	769.3	791.0	826.9	881.6	963.1	1071.6	1214.6	1368.7
55°	670.5	673.5	681.0	692.2	712.4	736.4	780.5	844.9	941.4	1069.4	1203.4
57.5°	607.7	610.7	616.6	621.1	639.1	659.3	695.2	741.6	817.2	931.0	1052.9
60°	547.8	546.3	553.8	557.5	568.7	585.2	611.4	655.6	719.2	806.7	916.7
62.5°	489.4	487.2	493.2	498.4	503.6	517.1	537.3	569.5	618.1	695.2	786.5
65°	431.1	428.1	431.8	437.8	443.8	451.3	467.0	497.7	538.8	595.7	668.3
67.5°	371.2	374.9	374.9	378.7	382.4	392.9	404.1	428.1	457.2	503.6	568.0
70°	318.8	319.5	322.5	322.5	324.8	333.8	342.7	355.5	383.9	425.8	476.0
72.5°	266.4	270.2	267.9	270.9	272.4	277.6	283.6	295.6	318.8	347.2	387.6
75°	215.5	217.8	217.8	218.5	220.8	223.0	228.2	237.2	254.4	277.6	306.8
77.5°	166.1	166.1	167.6	170.6	170.6	174.4	178.9	185.6	195.3	212.5	231.2
80°	121.2	122.7	122.0	123.5	123.5	126.5	128.0	136.9	140.7	151.2	165.4
82.5°	80.8	82.3	82.3	84.6	86.1	86.1	88.3	90.6	94.3	103.3	107.0
85°	44.9	46.4	44.9	46.4	48.6	49.4	51.6	52.4	55.4	57.6	62.9
87.5°	16.5	18.7	18.7	19.5	21.0	21.7	22.5	21.7	24.7	25.4	28.4
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: P242647

CATALOG NUMBER: S124DR-S1195D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5
2.5°	1879.1	1868.6	1861.2	1855.2	1838.7	1829.0	1821.5	1811.0	1799.0	1786.3	1770.6
5°	1970.4	1945.0	1926.3	1897.8	1870.9	1848.4	1825.2	1804.3	1778.8	1751.1	1730.9
7.5°	2064.0	2028.8	1981.6	1945.0	1900.8	1862.7	1829.0	1793.8	1756.4	1720.5	1686.8
10°	2152.3	2103.6	2049.7	1986.1	1926.3	1873.1	1823.7	1775.8	1729.4	1683.0	1643.4
12.5°	2247.3	2183.7	2097.6	2020.6	1951.7	1876.1	1814.0	1752.6	1694.3	1644.9	1597.0
15°	2330.4	2242.8	2150.8	2051.2	1962.9	1879.9	1798.3	1724.2	1661.3	1597.0	1552.1
17.5°	2382.8	2274.2	2175.5	2071.4	1969.7	1865.6	1781.1	1698.0	1620.2	1557.3	1501.2
20°	2434.4	2326.6	2195.7	2091.6	1964.4	1856.7	1754.9	1659.8	1577.5	1509.4	1451.1
22.5°	2479.3	2350.6	2219.6	2074.4	1948.0	1832.0	1718.2	1622.4	1537.9	1465.3	1409.9
25°	2489.8	2346.8	2204.6	2068.4	1924.8	1789.3	1688.3	1576.0	1486.2	1410.6	1350.8
27.5°	2493.5	2342.3	2184.4	2036.3	1888.1	1764.6	1632.9	1534.9	1442.1	1362.0	1305.1
30°	2485.3	2325.9	2153.0	1989.1	1840.2	1703.3	1592.5	1483.2	1388.2	1308.9	1249.0
32.5°	2459.1	2291.5	2112.6	1936.7	1781.1	1647.9	1532.6	1430.1	1338.1	1260.2	1196.6
35°	2403.7	2239.8	2050.5	1870.1	1712.2	1576.8	1473.5	1368.0	1275.2	1201.1	1140.5
37.5°	2329.6	2177.0	1984.6	1796.8	1644.9	1507.2	1403.2	1305.9	1222.1	1145.7	1082.9
40°	2226.4	2096.1	1903.1	1721.2	1553.6	1424.1	1328.3	1240.8	1157.7	1086.6	1027.5
42.5°	2107.4	1998.1	1823.7	1628.4	1468.3	1338.1	1245.3	1168.9	1091.8	1027.5	968.4
45°	1961.4	1886.6	1719.0	1540.9	1372.5	1249.8	1160.7	1091.8	1026.0	961.6	912.2
47.5°	1799.0	1757.1	1611.2	1440.6	1278.9	1156.2	1079.1	1013.3	953.4	897.3	853.1
50°	1635.2	1617.2	1495.2	1332.1	1179.4	1065.7	987.8	933.2	883.8	835.9	794.8
52.5°	1473.5	1477.3	1370.2	1224.3	1085.9	977.3	900.3	850.1	809.0	772.3	736.4
55°	1308.1	1329.1	1243.0	1109.8	983.3	884.6	815.0	769.3	739.4	707.2	679.5
57.5°	1156.2	1191.4	1116.5	994.6	887.5	793.3	731.9	696.7	663.8	642.8	621.1
60°	1008.0	1041.0	985.6	886.8	787.3	709.4	651.8	621.1	593.4	580.0	565.8
62.5°	876.3	904.8	867.3	777.5	694.5	620.4	574.0	544.8	528.3	513.4	505.1
65°	752.1	776.8	741.6	675.0	600.9	541.1	501.4	478.2	460.2	454.3	443.8
67.5°	629.4	651.8	633.1	574.7	511.9	464.7	433.3	408.6	398.1	392.1	385.4
70°	522.4	544.8	524.6	475.2	429.6	391.4	362.2	349.5	338.3	336.0	325.5
72.5°	431.8	445.3	425.1	389.1	351.7	321.0	300.1	286.6	282.1	277.6	273.1
75°	337.5	351.0	337.5	307.6	279.9	257.4	238.0	232.7	226.0	223.8	220.0
77.5°	252.9	265.7	255.2	235.0	213.3	194.6	183.3	175.9	175.1	170.6	172.1
80°	182.6	190.1	180.4	167.6	151.2	139.2	131.7	128.0	123.5	122.0	125.0
82.5°	118.2	120.5	116.7	109.3	98.0	91.3	86.8	82.3	82.3	83.1	82.3
85°	68.1	67.4	66.6	59.1	55.4	50.1	47.1	46.4	45.6	47.1	48.6
87.5°	28.4	29.2	28.4	25.4	23.2	21.0	20.2	19.5	20.2	21.0	21.7
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: P242647

CATALOG NUMBER: S124DR-S1195D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5	1806.5
2.5°	1763.1	1756.4	1746.7	1733.2	1722.0	1710.0	1707.0	1702.5	1711.5	1704.0	1701.8
5°	1713.7	1698.0	1677.8	1654.6	1641.1	1621.7	1617.9	1610.5	1603.0	1602.2	1594.7
7.5°	1662.1	1640.4	1614.9	1591.0	1570.0	1549.1	1535.6	1534.1	1522.2	1516.2	1508.7
10°	1612.7	1584.3	1553.6	1531.1	1505.7	1483.2	1467.5	1458.5	1451.1	1442.8	1435.3
12.5°	1554.3	1523.6	1499.7	1475.0	1443.6	1427.9	1399.4	1382.2	1382.2	1384.5	1362.0
15°	1511.7	1481.7	1442.8	1408.4	1391.9	1359.0	1344.8	1326.8	1315.6	1304.4	1295.4
17.5°	1459.3	1422.6	1392.7	1353.8	1323.1	1298.4	1278.9	1269.2	1251.2	1234.8	1223.6
20°	1410.6	1371.0	1338.8	1296.9	1262.5	1230.3	1214.6	1199.6	1186.9	1173.4	1160.7
22.5°	1361.3	1319.3	1278.2	1237.8	1206.3	1171.9	1157.0	1135.3	1123.3	1117.3	1104.6
25°	1308.9	1264.0	1219.1	1180.2	1147.2	1117.3	1097.1	1081.4	1067.9	1061.9	1053.7
27.5°	1252.0	1207.8	1165.2	1120.3	1082.1	1060.4	1044.0	1031.2	1023.0	1014.0	1010.3
30°	1198.1	1151.7	1105.3	1064.2	1029.7	1008.0	993.1	984.8	978.8	975.1	971.4
32.5°	1143.5	1097.8	1048.4	1011.8	981.8	963.1	952.7	944.4	942.2	941.4	940.7
35°	1084.4	1038.0	993.1	959.4	930.2	922.7	913.0	908.5	907.0	912.2	914.5
37.5°	1027.5	984.1	942.2	908.5	889.0	877.1	873.3	872.6	877.8	882.3	887.5
40°	972.9	931.0	892.0	863.6	845.6	838.9	837.4	841.1	847.1	852.4	858.4
42.5°	919.7	878.6	844.1	818.0	806.7	800.7	802.2	806.0	815.0	821.7	831.4
45°	864.3	829.9	795.5	773.8	763.3	764.8	764.8	771.6	779.8	789.5	799.2
47.5°	812.7	777.5	748.4	729.6	724.4	722.2	725.9	734.9	746.1	757.3	770.8
50°	760.3	727.4	702.7	686.2	680.3	682.5	688.5	696.7	710.9	725.9	740.1
52.5°	707.2	678.0	655.6	640.6	636.8	641.3	647.3	661.5	673.5	690.0	707.9
55°	651.8	626.4	608.4	597.2	595.7	597.9	604.7	618.9	636.8	657.1	673.5
57.5°	597.2	575.5	558.3	550.0	550.8	552.3	562.8	580.0	597.9	619.6	640.6
60°	541.8	522.4	508.9	502.9	503.6	508.1	521.6	537.3	561.3	582.2	604.7
62.5°	489.4	473.0	460.2	455.0	453.5	464.7	477.4	493.9	517.9	541.8	566.5
65°	432.5	419.1	408.6	405.6	407.9	415.3	431.8	453.5	473.7	498.4	523.8
67.5°	377.2	365.9	358.5	360.0	362.2	372.7	386.9	405.6	428.1	453.5	479.7
70°	324.8	314.3	308.3	309.1	313.6	327.0	339.0	357.7	382.4	408.6	429.6
72.5°	270.9	264.9	259.7	263.4	267.9	276.1	291.9	310.6	331.5	355.5	377.9
75°	216.3	216.3	213.3	215.5	222.3	231.2	242.5	261.9	283.6	303.1	321.0
77.5°	169.9	167.6	169.1	171.4	175.9	187.1	199.8	214.0	231.2	251.4	266.4
80°	122.7	123.5	127.2	131.7	133.2	141.4	154.9	167.6	180.4	196.8	211.0
82.5°	84.6	85.3	86.8	92.8	94.3	103.3	110.8	123.5	134.7	144.4	155.7
85°	50.1	50.1	53.9	56.1	59.9	65.9	71.1	78.6	89.1	96.5	107.8
87.5°	23.9	23.9	26.9	28.4	30.7	34.4	35.9	44.2	47.1	50.9	57.6
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: P242647

CATALOG NUMBER: S124DR-S1195D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1806.5	1806.5	1806.5	1806.5
2.5°	1700.3	1698.8	1693.5	1692.8
5°	1590.3	1586.5	1584.3	1592.5
7.5°	1507.2	1504.2	1497.5	1495.2
10°	1427.9	1424.9	1418.9	1417.4
12.5°	1351.5	1344.8	1344.8	1347.0
15°	1285.7	1282.7	1274.4	1276.7
17.5°	1218.3	1215.3	1204.1	1215.3
20°	1155.5	1149.5	1144.2	1143.5
22.5°	1095.6	1090.4	1091.1	1085.1
25°	1047.7	1042.5	1041.0	1037.2
27.5°	1008.8	1005.8	1002.8	1004.3
30°	973.6	972.9	971.4	971.4
32.5°	944.4	944.4	945.9	945.9
35°	917.5	919.7	921.2	919.0
37.5°	893.5	895.0	897.3	899.5
40°	865.1	870.3	871.8	875.6
42.5°	838.2	844.1	848.6	848.6
45°	810.5	816.5	821.7	821.7
47.5°	782.0	790.3	795.5	796.2
50°	752.8	763.3	768.6	772.3
52.5°	724.4	734.9	742.4	743.9
55°	690.7	705.7	713.9	716.9
57.5°	660.8	674.3	683.2	685.5
60°	624.9	639.8	651.8	654.1
62.5°	588.2	603.9	614.4	621.1
65°	544.8	560.5	571.0	573.2
67.5°	499.2	515.6	522.4	526.8
70°	450.5	463.2	470.7	474.5
72.5°	395.1	408.6	417.6	417.6
75°	338.3	350.2	354.7	354.7
77.5°	279.1	285.9	291.9	293.4
80°	222.3	226.0	230.5	230.5
82.5°	163.9	166.9	171.4	170.6
85°	106.3	113.0	112.3	110.8
87.5°	59.9	60.6	62.9	64.4
90°	0.0	0.0	0.0	0.0

(END OF REPORT)