

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: P242651

Luminaire Tested: **S124DR-S1020D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242651
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-S1020D930-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3462.9 lumens
Efficiency: N/A
Efficacy: 99.5 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

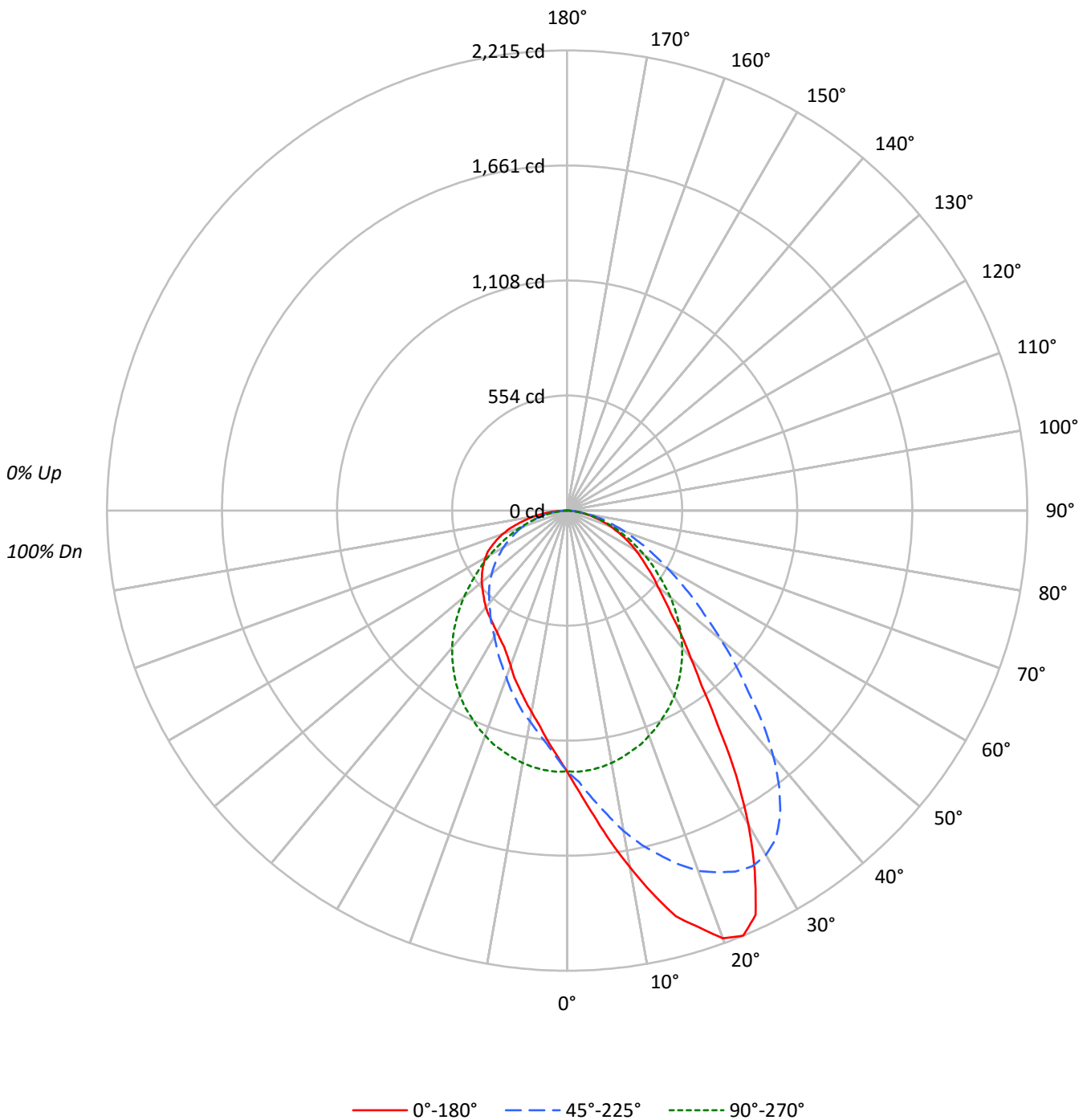
Input Watts (W): 34.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	11155	11155	11155
5°	13136	11184	9871
10°	15729	11135	8887
15°	18609	11023	8162
20°	20723	10907	7514
25°	21057	10738	7067
30°	17918	10576	6926
35°	13776	10312	6928
40°	10737	10001	7057
45°	8953	9535	7175
50°	7880	8965	7419
55°	7219	8282	7718
60°	6764	7671	8078
65°	6297	6987	8375
70°	5757	6310	8566
75°	5141	5553	8462
80°	4310	4551	8195
85°	3182	3284	7843



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	122.1	3.5
10°-20°	377.0	10.9
20°-30°	598.9	17.3
30°-40°	665.4	19.2
40°-50°	605.2	17.5
50°-60°	494.5	14.3
60°-70°	353.0	10.2
70°-80°	194.2	5.6
80°-90°	52.5	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°	1098.0	31.7
0°-40°	1763.4	50.9
0°-60°	2863.1	82.7
0°-90°	3462.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3462.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1255	1255	1255	1255	1255	
5°	1472	1391	1253	1126	1106	149
15°	2022	1716	1198	944	887	572
25°	2147	1917	1095	776	720	952
35°	1270	1788	950	641	638	804
45°	712	1234	758	531	571	560
55°	466	743	534	415	498	420
65°	299	414	332	288	398	296
75°	150	193	162	161	246	159
85°	31	40	32	46	77	38
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°	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9
2.5°	1355.8	1355.3	1350.1	1349.0	1345.4	1340.7	1339.7	1331.4	1314.7	1306.9	1304.8
5°	1472.2	1482.6	1469.1	1466.5	1465.0	1447.8	1439.0	1428.6	1404.7	1390.6	1379.7
7.5°	1608.4	1609.0	1603.2	1597.5	1587.6	1573.1	1553.3	1530.5	1502.9	1474.8	1455.1
10°	1742.6	1746.7	1740.0	1738.9	1712.4	1695.8	1662.5	1634.4	1602.2	1566.3	1533.6
12.5°	1884.0	1875.6	1873.0	1845.5	1846.0	1812.2	1772.2	1743.1	1689.0	1646.4	1600.1
15°	2022.2	2010.8	2003.5	1972.9	1957.8	1915.7	1874.6	1842.9	1777.9	1716.0	1669.3
17.5°	2102.3	2116.3	2097.6	2085.1	2044.1	2016.5	1975.5	1910.5	1862.1	1785.2	1731.6
20°	2190.7	2191.7	2182.4	2169.4	2138.7	2101.3	2055.5	1982.7	1921.9	1845.5	1764.4
22.5°	2214.6	2214.6	2212.0	2200.0	2178.7	2150.1	2103.9	2046.2	1969.2	1884.5	1803.4
25°	2147.0	2144.9	2149.6	2163.1	2154.3	2144.9	2118.4	2073.2	2004.6	1916.7	1829.4
27.5°	1955.7	1969.2	1997.3	2030.6	2054.5	2075.8	2074.2	2055.0	2006.1	1930.2	1837.2
30°	1745.7	1763.4	1783.1	1816.4	1880.8	1917.8	1958.3	1989.0	1971.8	1914.1	1828.9
32.5°	1514.9	1515.9	1547.6	1586.6	1644.3	1723.8	1794.0	1864.2	1894.4	1871.0	1803.4
35°	1269.5	1276.8	1308.5	1345.9	1418.2	1505.0	1601.7	1688.0	1759.2	1787.8	1751.4
37.5°	1063.6	1086.5	1110.4	1153.0	1219.1	1297.6	1401.5	1509.1	1613.6	1677.1	1683.8
40°	925.3	938.3	954.5	985.1	1039.2	1116.1	1202.4	1330.3	1443.1	1545.0	1578.3
42.5°	816.2	822.4	830.7	857.8	895.7	972.1	1049.1	1157.7	1271.1	1397.9	1459.2
45°	712.2	720.0	736.6	752.8	783.9	837.0	910.3	1002.8	1116.7	1234.1	1337.1
47.5°	634.2	639.4	649.8	667.5	695.6	731.4	793.8	872.3	983.6	1097.4	1207.6
50°	569.8	573.9	581.7	597.3	617.6	648.8	697.6	769.9	852.6	967.5	1075.1
52.5°	518.8	519.9	525.1	534.4	549.5	574.4	612.4	669.1	744.4	843.7	950.8
55°	465.8	467.9	473.1	480.9	494.9	511.5	542.2	586.9	654.0	742.9	835.9
57.5°	422.1	424.2	428.4	431.5	444.0	458.0	482.9	515.2	567.7	646.7	731.4
60°	380.5	379.5	384.7	387.3	395.1	406.5	424.7	455.4	499.6	560.4	636.8
62.5°	340.0	338.4	342.6	346.2	349.9	359.2	373.3	395.6	429.4	482.9	546.4
65°	299.4	297.4	300.0	304.1	308.3	313.5	324.4	345.7	374.3	413.8	464.2
67.5°	257.8	260.4	260.4	263.0	265.6	272.9	280.7	297.4	317.6	349.9	394.6
70°	221.5	222.0	224.1	224.1	225.6	231.9	238.1	246.9	266.7	295.8	330.6
72.5°	185.1	187.7	186.1	188.2	189.2	192.9	197.0	205.3	221.5	241.2	269.3
75°	149.7	151.3	151.3	151.8	153.4	154.9	158.6	164.8	176.8	192.9	213.1
77.5°	115.4	115.4	116.4	118.5	118.5	121.1	124.2	128.9	135.7	147.6	160.6
80°	84.2	85.3	84.7	85.8	85.8	87.9	88.9	95.1	97.7	105.0	114.9
82.5°	56.1	57.2	57.2	58.7	59.8	59.8	61.3	62.9	65.5	71.7	74.3
85°	31.2	32.2	31.2	32.2	33.8	34.3	35.9	36.4	38.5	40.0	43.7
87.5°	11.4	13.0	13.0	13.5	14.6	15.1	15.6	15.1	17.2	17.7	19.8
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9
2.5°	1305.4	1298.1	1292.9	1288.7	1277.3	1270.5	1265.3	1258.1	1249.7	1240.9	1230.0
5°	1368.8	1351.1	1338.1	1318.4	1299.6	1284.0	1267.9	1253.4	1235.7	1216.5	1202.4
7.5°	1433.8	1409.3	1376.6	1351.1	1320.4	1293.9	1270.5	1246.1	1220.1	1195.2	1171.8
10°	1495.1	1461.3	1423.9	1379.7	1338.1	1301.2	1266.9	1233.6	1201.4	1169.2	1141.6
12.5°	1561.1	1516.9	1457.2	1403.6	1355.8	1303.3	1260.1	1217.5	1177.0	1142.6	1109.4
15°	1618.8	1558.0	1494.1	1424.9	1363.6	1305.9	1249.2	1197.8	1154.1	1109.4	1078.2
17.5°	1655.2	1579.8	1511.2	1439.0	1368.3	1296.0	1237.3	1179.6	1125.5	1081.8	1042.8
20°	1691.1	1616.2	1525.3	1453.0	1364.6	1289.8	1219.1	1153.0	1095.9	1048.6	1008.0
22.5°	1722.3	1632.9	1541.9	1441.0	1353.2	1272.6	1193.6	1127.0	1068.3	1017.9	979.4
25°	1729.6	1630.3	1531.5	1436.9	1337.1	1243.0	1172.8	1094.8	1032.4	979.9	938.3
27.5°	1732.2	1627.2	1517.5	1414.5	1311.6	1225.8	1134.3	1066.2	1001.8	946.1	906.6
30°	1726.4	1615.7	1495.6	1381.8	1278.3	1183.2	1106.3	1030.4	964.3	909.2	867.6
32.5°	1708.2	1591.8	1467.6	1345.4	1237.3	1144.7	1064.7	993.4	929.5	875.4	831.3
35°	1669.8	1555.9	1424.4	1299.1	1189.4	1095.3	1023.6	950.3	885.8	834.4	792.3
37.5°	1618.3	1512.3	1378.7	1248.2	1142.6	1047.0	974.7	907.2	848.9	795.9	752.2
40°	1546.6	1456.1	1322.0	1195.7	1079.2	989.3	922.7	861.9	804.2	754.8	713.8
42.5°	1463.9	1388.0	1266.9	1131.2	1020.0	929.5	865.0	812.0	758.5	713.8	672.7
45°	1362.5	1310.6	1194.1	1070.4	953.4	868.2	806.3	758.5	712.7	668.0	633.7
47.5°	1249.7	1220.6	1119.3	1000.7	888.4	803.2	749.6	703.9	662.3	623.3	592.6
50°	1135.9	1123.4	1038.7	925.3	819.3	740.3	686.2	648.3	614.0	580.7	552.1
52.5°	1023.6	1026.2	951.9	850.5	754.3	678.9	625.4	590.6	562.0	536.5	511.5
55°	908.7	923.3	863.5	770.9	683.1	614.5	566.1	534.4	513.6	491.3	472.0
57.5°	803.2	827.6	775.6	690.9	616.6	551.0	508.4	484.0	461.1	446.6	431.5
60°	700.2	723.1	684.7	616.0	546.9	492.8	452.8	431.5	412.2	402.9	393.0
62.5°	608.8	628.5	602.5	540.1	482.4	431.0	398.7	378.5	367.0	356.6	350.9
65°	522.5	539.6	515.2	468.9	417.4	375.9	348.3	332.2	319.7	315.6	308.3
67.5°	437.2	452.8	439.8	399.3	355.6	322.8	301.0	283.8	276.6	272.4	267.7
70°	362.9	378.5	364.4	330.1	298.4	271.9	251.6	242.8	235.0	233.4	226.1
72.5°	300.0	309.3	295.3	270.3	244.3	223.0	208.5	199.1	196.0	192.9	189.7
75°	234.5	243.8	234.5	213.7	194.4	178.8	165.3	161.7	157.0	155.4	152.8
77.5°	175.7	184.5	177.3	163.2	148.2	135.2	127.4	122.2	121.6	118.5	119.6
80°	126.8	132.0	125.3	116.4	105.0	96.7	91.5	88.9	85.8	84.7	86.8
82.5°	82.1	83.7	81.1	75.9	68.1	63.4	60.3	57.2	57.2	57.7	57.2
85°	47.3	46.8	46.3	41.1	38.5	34.8	32.8	32.2	31.7	32.8	33.8
87.5°	19.8	20.3	19.8	17.7	16.1	14.6	14.0	13.5	14.0	14.6	15.1
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°	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9	1254.9
2.5°	1224.8	1220.1	1213.3	1204.0	1196.2	1187.9	1185.8	1182.7	1188.9	1183.7	1182.2
5°	1190.5	1179.6	1165.5	1149.4	1140.0	1126.5	1123.9	1118.7	1113.5	1113.0	1107.8
7.5°	1154.6	1139.5	1121.9	1105.2	1090.7	1076.1	1066.7	1065.7	1057.4	1053.2	1048.0
10°	1120.3	1100.5	1079.2	1063.6	1046.0	1030.4	1019.4	1013.2	1008.0	1002.3	997.1
12.5°	1079.7	1058.4	1041.8	1024.6	1002.8	991.9	972.1	960.2	960.2	961.7	946.1
15°	1050.1	1029.3	1002.3	978.4	966.9	944.1	934.2	921.7	913.9	906.1	899.9
17.5°	1013.7	988.2	967.5	940.4	919.1	902.0	888.4	881.7	869.2	857.8	850.0
20°	979.9	952.4	930.0	900.9	877.0	854.6	843.7	833.3	824.5	815.1	806.3
22.5°	945.6	916.5	887.9	859.8	838.0	814.1	803.7	788.6	780.3	776.1	767.3
25°	909.2	878.0	846.8	819.8	796.9	776.1	762.1	751.2	741.8	737.7	732.0
27.5°	869.7	839.0	809.4	778.2	751.7	736.6	725.2	716.4	710.6	704.4	701.8
30°	832.3	800.1	767.8	739.2	715.3	700.2	689.9	684.1	680.0	677.4	674.8
32.5°	794.3	762.6	728.3	702.8	682.1	669.1	661.8	656.1	654.5	654.0	653.5
35°	753.3	721.0	689.9	666.5	646.2	641.0	634.2	631.1	630.1	633.7	635.3
37.5°	713.8	683.6	654.5	631.1	617.6	609.3	606.7	606.2	609.8	612.9	616.6
40°	675.8	646.7	619.7	599.9	587.4	582.8	581.7	584.3	588.5	592.1	596.3
42.5°	638.9	610.3	586.4	568.2	560.4	556.2	557.3	559.9	566.1	570.8	577.6
45°	600.4	576.5	552.6	537.5	530.3	531.3	531.3	536.0	541.7	548.4	555.2
47.5°	564.6	540.1	519.9	506.9	503.2	501.7	504.3	510.5	518.3	526.1	535.5
50°	528.2	505.3	488.1	476.7	472.5	474.1	478.3	484.0	493.9	504.3	514.1
52.5°	491.3	471.0	455.4	445.0	442.4	445.5	449.7	459.6	467.9	479.3	491.8
55°	452.8	435.1	422.6	414.8	413.8	415.4	420.0	429.9	442.4	456.4	467.9
57.5°	414.8	399.8	387.8	382.1	382.6	383.7	390.9	402.9	415.4	430.4	445.0
60°	376.4	362.9	353.5	349.3	349.9	353.0	362.3	373.3	389.9	404.4	420.0
62.5°	340.0	328.5	319.7	316.1	315.0	322.8	331.7	343.1	359.7	376.4	393.5
65°	300.5	291.1	283.8	281.8	283.3	288.5	300.0	315.0	329.1	346.2	363.9
67.5°	262.0	254.2	249.0	250.1	251.6	258.9	268.8	281.8	297.4	315.0	333.2
70°	225.6	218.3	214.2	214.7	217.8	227.2	235.5	248.5	265.6	283.8	298.4
72.5°	188.2	184.0	180.4	183.0	186.1	191.8	202.7	215.7	230.3	246.9	262.5
75°	150.2	150.2	148.2	149.7	154.4	160.6	168.4	181.9	197.0	210.5	223.0
77.5°	118.0	116.4	117.5	119.0	122.2	130.0	138.8	148.7	160.6	174.7	185.1
80°	85.3	85.8	88.4	91.5	92.5	98.3	107.6	116.4	125.3	136.7	146.6
82.5°	58.7	59.3	60.3	64.5	65.5	71.7	76.9	85.8	93.6	100.3	108.1
85°	34.8	34.8	37.4	39.0	41.6	45.7	49.4	54.6	61.9	67.1	74.9
87.5°	16.6	16.6	18.7	19.8	21.3	23.9	25.0	30.7	32.8	35.4	40.0
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: P242651

CATALOG NUMBER: S124DR-S1020D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1254.9	1254.9	1254.9	1254.9
2.5°	1181.1	1180.1	1176.4	1175.9
5°	1104.7	1102.1	1100.5	1106.3
7.5°	1047.0	1044.9	1040.2	1038.7
10°	991.9	989.8	985.6	984.6
12.5°	938.9	934.2	934.2	935.7
15°	893.1	891.0	885.3	886.9
17.5°	846.3	844.2	836.4	844.2
20°	802.7	798.5	794.9	794.3
22.5°	761.1	757.4	758.0	753.8
25°	727.8	724.2	723.1	720.5
27.5°	700.8	698.7	696.6	697.6
30°	676.3	675.8	674.8	674.8
32.5°	656.1	656.1	657.1	657.1
35°	637.3	638.9	639.9	638.4
37.5°	620.7	621.7	623.3	624.9
40°	601.0	604.6	605.6	608.2
42.5°	582.2	586.4	589.5	589.5
45°	563.0	567.2	570.8	570.8
47.5°	543.3	549.0	552.6	553.1
50°	523.0	530.3	533.9	536.5
52.5°	503.2	510.5	515.7	516.7
55°	479.8	490.2	495.9	498.0
57.5°	459.0	468.4	474.6	476.2
60°	434.1	444.5	452.8	454.4
62.5°	408.6	419.5	426.8	431.5
65°	378.5	389.4	396.7	398.2
67.5°	346.7	358.2	362.9	366.0
70°	313.0	321.8	327.0	329.6
72.5°	274.5	283.8	290.1	290.1
75°	235.0	243.3	246.4	246.4
77.5°	193.9	198.6	202.7	203.8
80°	154.4	157.0	160.1	160.1
82.5°	113.8	115.9	119.0	118.5
85°	73.8	78.5	78.0	76.9
87.5°	41.6	42.1	43.7	44.7
90°	0.0	0.0	0.0	0.0

(END OF REPORT)