

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: P242135

Luminaire Tested: **S121DR-S880D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242135
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-18)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121DR-S880D930-X4F0-XX-UDD-A-W
Description: DEFINE 1 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: 2977.2 lumens
Efficiency: N/A
Efficacy: 85.6 lumens/watt
Spacing Criteria (0/90/45): 1.27 / 1.22 / 1.37
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

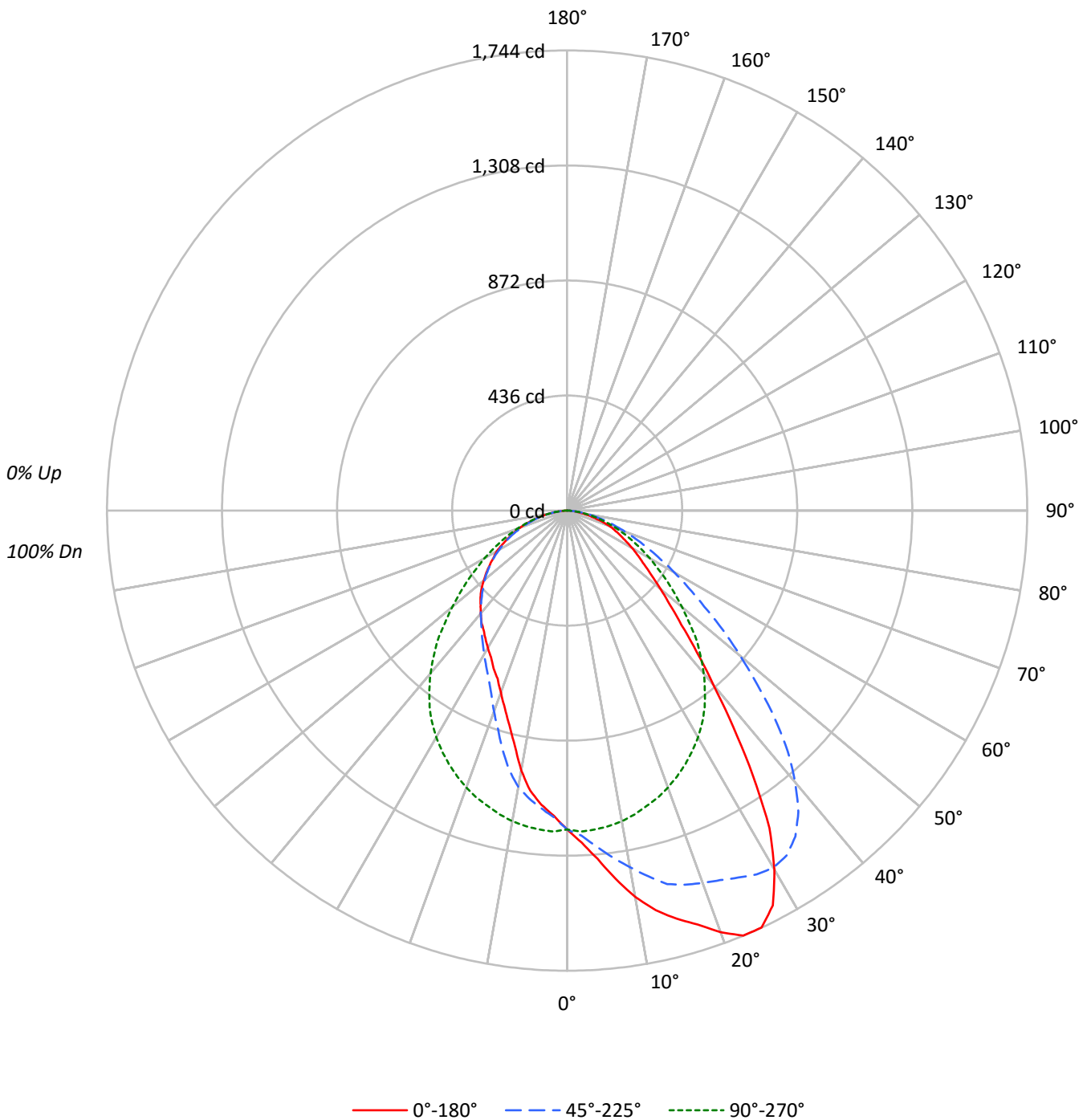
Input Watts (W): 34.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P242135

CATALOG NUMBER: S121DR-S880D930-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot





TEST NUMBER: P242135

CATALOG NUMBER: S121DR-S880D930-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	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	105	102	98	107	103	100	96	99	96	93	95	93	91	92	90	88					86				
2	101	93	87	82	98	91	85	81	88	83	79	85	80	77	82	78	75					73				
3	92	83	75	69	90	81	74	68	78	72	67	75	70	66	73	69	65					63				
4	85	74	66	59	83	73	65	59	70	63	58	68	62	57	66	61	57					54				
5	79	66	58	52	77	65	57	51	63	56	51	61	55	50	60	54	50					48				
6	73	60	52	46	71	59	51	45	57	50	45	56	49	45	54	49	44					42				
7	68	55	46	41	66	54	46	40	52	45	40	51	45	40	50	44	40					38				
8	63	50	42	36	62	50	42	36	48	41	36	47	41	36	46	40	36					34				
9	59	46	38	33	58	46	38	33	44	38	33	43	37	33	42	37	32					31				
10	56	43	35	30	54	42	35	30	41	34	30	40	34	30	39	34	30					28				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	35799	35799	35799
5°	39397	36090	33276
10°	44733	35960	30093
15°	49117	35561	25865
20°	53603	35211	23147
25°	57003	34654	21551
30°	53749	33936	20562
35°	44415	32869	19970
40°	33299	31167	19707
45°	25661	29060	19476
50°	21278	26145	19028
55°	18370	23742	18478
60°	16883	21410	18240
65°	15599	19357	17205
70°	14771	17387	16486
75°	12146	15352	14642
80°	9572	12507	12064
85°	7411	9179	8125



TEST NUMBER: P242135

CATALOG NUMBER: S121DR-S880D930-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	116.2	3.9
10°-20°	338.9	11.4
20°-30°	518.9	17.4
30°-40°	592.1	19.9
40°-50°	531.3	17.8
50°-60°	416.8	14.0
60°-70°	283.5	9.5
70°-80°	146.0	4.9
80°-90°	33.6	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°	973.9	32.7
0°-40°	1566.0	52.6
0°-60°	2514.0	84.4
0°-90°	2977.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2977.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1208	1208	1208	1208	1208	
5°	1325	1278	1213	1132	1119	132
15°	1601	1466	1159	942	843	456
25°	1744	1535	1060	703	659	786
35°	1228	1508	909	564	552	761
45°	612	1112	694	457	465	486
55°	356	635	460	354	358	324
65°	222	338	276	241	245	222
75°	106	149	134	123	128	114
85°	22	29	27	26	24	26
90°	0	0	0	0	0	



TEST NUMBER: P242135

CATALOG NUMBER: S121DR-S880D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2
2.5°	1259.1	1259.1	1261.2	1260.7	1258.6	1255.0	1251.8	1248.2	1238.8	1232.6	1238.3
5°	1324.6	1327.2	1329.8	1329.3	1321.5	1314.8	1304.9	1302.3	1285.6	1277.8	1275.2
7.5°	1407.8	1407.3	1408.3	1399.5	1392.7	1386.0	1373.0	1356.9	1337.1	1326.2	1315.8
10°	1486.8	1491.5	1489.4	1478.5	1468.1	1460.8	1440.0	1420.3	1395.9	1372.5	1359.5
12.5°	1551.3	1548.7	1557.5	1547.1	1534.7	1521.1	1500.9	1483.2	1451.5	1419.8	1393.3
15°	1601.2	1598.6	1599.6	1591.8	1578.8	1566.9	1546.1	1527.4	1497.2	1465.5	1437.4
17.5°	1644.9	1647.5	1642.8	1633.4	1615.8	1601.7	1575.7	1550.3	1518.5	1486.8	1459.3
20°	1700.0	1702.6	1693.7	1680.2	1663.1	1639.1	1612.1	1575.7	1540.4	1501.4	1467.1
22.5°	1743.6	1742.1	1739.0	1726.0	1707.8	1685.4	1646.4	1606.4	1564.3	1515.9	1471.8
25°	1743.6	1745.7	1747.3	1740.5	1728.6	1709.9	1683.3	1641.2	1593.9	1534.7	1472.8
27.5°	1687.5	1696.9	1703.6	1703.6	1701.0	1700.5	1684.9	1658.4	1614.2	1554.4	1485.8
30°	1571.0	1583.5	1593.9	1610.0	1629.3	1641.7	1646.4	1636.0	1613.2	1562.7	1491.5
32.5°	1427.6	1426.5	1447.8	1473.8	1511.8	1538.3	1564.8	1580.4	1579.4	1549.2	1489.9
35°	1227.9	1242.5	1268.0	1304.4	1353.2	1396.9	1454.6	1484.7	1508.7	1507.6	1469.7
37.5°	1033.5	1035.6	1064.2	1114.1	1157.2	1224.8	1300.2	1363.1	1420.8	1439.5	1427.0
40°	860.9	875.5	894.7	936.3	979.4	1038.7	1134.4	1218.6	1289.8	1344.9	1360.0
42.5°	727.8	735.6	754.3	790.7	829.2	899.9	970.1	1060.0	1150.0	1237.8	1283.0
45°	612.4	619.7	636.8	662.3	698.2	753.8	826.1	913.4	1009.6	1112.5	1177.0
47.5°	528.2	530.8	543.8	563.0	596.8	637.4	695.6	780.3	877.5	977.9	1072.5
50°	461.6	465.8	474.6	489.7	514.7	552.6	598.9	662.8	752.8	856.7	952.9
52.5°	403.4	406.5	416.9	425.3	444.5	476.7	516.8	575.0	650.9	744.5	843.7
55°	355.6	358.7	363.9	373.3	388.3	410.2	444.5	490.8	555.7	634.8	727.8
57.5°	319.2	320.8	321.8	328.0	340.0	357.7	386.8	423.2	473.6	545.9	628.5
60°	284.9	284.4	288.5	293.2	300.5	311.4	332.7	365.5	410.7	469.4	546.4
62.5°	250.6	253.2	255.8	259.4	264.1	270.3	287.5	311.9	347.8	398.2	461.6
65°	222.5	223.0	225.1	225.6	231.3	237.6	250.6	267.2	296.8	337.9	390.4
67.5°	195.5	196.0	195.5	197.0	199.6	204.8	211.6	225.1	248.0	281.2	327.0
70°	170.5	169.0	166.9	169.5	172.1	174.7	179.4	189.8	206.9	231.9	269.8
72.5°	137.2	138.3	139.3	140.4	140.9	144.5	148.7	156.0	169.5	188.7	217.8
75°	106.1	106.1	107.6	108.7	113.3	114.4	119.1	124.2	135.2	148.7	171.6
77.5°	78.0	77.5	80.1	80.6	83.2	86.3	88.9	94.1	102.4	113.9	128.9
80°	56.1	56.7	56.1	56.1	57.7	59.8	63.4	66.0	71.7	79.0	89.9
82.5°	37.4	37.4	38.0	38.0	39.5	39.5	41.6	43.7	47.3	52.0	59.8
85°	21.8	21.8	21.3	21.3	21.8	21.8	23.9	25.5	26.0	29.1	31.7
87.5°	9.4	9.4	8.8	9.4	8.8	9.4	8.8	9.9	10.4	10.9	12.0
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: P242135

CATALOG NUMBER: S121DR-S880D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2
2.5°	1236.8	1235.2	1234.7	1229.0	1223.3	1216.5	1215.5	1217.5	1208.7	1197.8	1197.3
5°	1269.0	1263.3	1255.0	1244.0	1234.7	1222.2	1216.0	1213.4	1199.9	1184.3	1181.1
7.5°	1304.9	1290.8	1275.8	1259.1	1242.5	1224.3	1212.9	1206.1	1187.4	1168.1	1160.3
10°	1339.2	1321.0	1298.1	1272.6	1249.2	1224.3	1207.1	1195.2	1172.3	1148.4	1136.4
12.5°	1378.7	1348.5	1316.3	1284.6	1256.0	1223.8	1197.8	1179.6	1153.1	1127.6	1109.9
15°	1407.3	1363.6	1338.7	1293.4	1257.6	1218.6	1186.9	1159.3	1130.2	1102.1	1084.4
17.5°	1429.6	1395.3	1351.7	1301.8	1253.4	1211.3	1171.8	1141.1	1102.6	1072.0	1052.7
20°	1436.9	1402.1	1357.4	1302.8	1254.4	1200.4	1153.6	1116.7	1075.6	1038.2	1011.7
22.5°	1434.3	1394.8	1349.1	1295.5	1246.6	1182.7	1133.8	1089.6	1043.9	1003.9	967.5
25°	1428.6	1382.9	1332.4	1282.0	1227.4	1164.5	1108.4	1060.0	1004.9	961.2	917.6
27.5°	1425.5	1365.7	1309.0	1254.4	1202.5	1141.6	1081.3	1027.3	966.4	913.4	857.3
30°	1424.4	1353.2	1282.0	1218.6	1170.7	1108.9	1049.1	991.9	920.7	860.9	803.7
32.5°	1422.4	1342.8	1259.1	1183.2	1128.6	1073.0	1009.6	952.9	872.3	810.0	748.6
35°	1408.3	1324.6	1232.6	1146.3	1082.4	1024.7	968.0	908.7	825.0	758.0	699.2
37.5°	1378.2	1304.9	1206.6	1109.4	1033.0	974.2	921.7	857.3	776.2	702.9	648.3
40°	1333.5	1273.7	1178.5	1073.0	983.1	918.6	863.0	805.8	722.1	651.9	602.5
42.5°	1275.2	1229.0	1139.6	1030.4	934.7	862.5	805.8	749.1	672.2	604.6	560.4
45°	1198.8	1170.2	1091.7	984.1	887.9	804.2	742.9	693.5	622.3	560.4	519.9
47.5°	1114.1	1101.6	1036.1	932.6	831.3	750.2	678.4	626.4	570.8	518.3	482.4
50°	1011.7	1021.5	970.1	874.9	776.7	693.5	623.3	567.2	518.8	478.3	446.6
52.5°	916.0	939.4	897.8	807.4	719.5	633.2	562.5	511.0	473.1	439.8	412.3
55°	809.4	843.2	818.3	740.3	653.0	576.5	505.8	459.6	426.8	401.3	377.9
57.5°	707.0	754.9	736.7	666.5	592.1	517.8	451.2	405.5	382.1	363.4	343.6
60°	616.0	659.7	657.1	597.3	523.0	457.0	402.4	361.3	340.5	328.0	310.9
62.5°	534.4	578.6	574.5	520.4	461.6	400.3	354.0	316.6	301.5	288.0	277.1
65°	451.2	489.2	491.3	451.2	394.6	345.2	305.7	276.1	262.5	254.2	246.4
67.5°	375.9	412.8	416.4	384.7	334.8	292.2	262.5	237.6	225.6	218.3	212.6
70°	309.8	340.0	346.8	320.2	278.1	244.9	219.9	200.7	192.9	185.6	183.5
72.5°	251.1	275.5	280.2	255.8	224.6	199.6	180.4	165.8	160.1	152.8	151.3
75°	199.6	216.8	217.3	201.2	177.8	158.6	143.0	134.1	127.9	122.7	121.6
77.5°	145.0	160.1	164.8	152.8	133.6	117.5	108.7	101.9	97.7	95.1	94.6
80°	105.0	114.9	117.0	106.6	95.1	85.3	79.0	73.3	70.7	68.1	67.1
82.5°	65.5	74.3	74.9	67.6	61.9	55.1	49.9	47.8	46.3	44.7	44.7
85°	35.4	40.0	39.5	36.4	33.8	30.2	28.1	27.0	26.0	25.0	25.0
87.5°	13.5	15.1	15.1	15.6	13.5	12.0	10.9	11.4	10.9	10.9	10.9
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: P242135

CATALOG NUMBER: S121DR-S880D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2
2.5°	1193.6	1191.5	1186.3	1178.0	1173.3	1162.9	1163.5	1165.5	1166.1	1164.5	1164.0
5°	1172.3	1166.1	1157.7	1147.4	1140.1	1132.3	1127.1	1130.2	1128.6	1128.1	1125.5
7.5°	1148.9	1140.6	1130.2	1119.8	1111.5	1101.1	1096.9	1093.3	1089.1	1088.6	1086.5
10°	1125.5	1115.1	1103.2	1088.1	1076.7	1063.7	1051.2	1044.4	1036.6	1030.9	1018.9
12.5°	1098.0	1080.3	1066.8	1051.2	1030.4	1009.6	995.6	976.3	965.9	955.5	941.5
15°	1066.3	1043.4	1020.0	988.8	970.6	941.5	920.7	906.7	890.5	880.1	868.2
17.5°	1021.0	997.1	967.5	932.1	899.9	870.3	855.2	837.0	830.2	807.4	805.3
20°	976.3	940.4	903.5	867.7	831.8	810.5	791.2	779.3	766.8	752.3	747.6
22.5°	925.9	879.1	840.1	806.8	774.1	750.7	741.3	727.8	715.9	707.5	699.7
25°	864.5	821.4	781.9	750.7	721.1	703.4	691.4	681.5	676.4	667.0	663.9
27.5°	807.9	764.7	733.0	703.9	680.0	664.4	654.0	645.2	638.4	636.8	633.2
30°	750.2	713.3	683.1	658.2	636.8	628.5	618.6	614.5	610.3	608.2	604.1
32.5°	698.2	665.4	638.9	615.0	602.5	594.7	589.5	585.4	582.3	581.2	580.2
35°	650.9	620.7	598.9	581.7	572.4	564.1	561.5	557.8	556.3	555.7	555.2
37.5°	609.3	581.2	564.6	549.5	542.7	534.9	535.5	533.9	532.9	529.7	531.8
40°	567.2	545.3	528.2	516.2	511.6	509.0	507.9	506.9	507.4	507.4	506.9
42.5°	528.7	509.5	498.6	487.1	485.0	483.0	483.0	481.4	481.9	484.5	485.6
45°	493.9	478.8	468.9	459.6	459.6	457.0	459.0	458.5	460.1	461.6	462.7
47.5°	459.0	445.5	438.3	433.6	431.5	431.5	433.1	435.7	436.7	437.2	438.3
50°	424.2	414.3	408.1	405.5	405.0	407.6	409.1	408.6	410.2	412.3	413.8
52.5°	393.5	384.7	380.5	379.5	379.5	381.6	382.1	383.7	384.7	384.7	386.8
55°	361.8	355.6	352.5	352.0	352.5	353.5	355.6	356.6	356.1	357.2	357.2
57.5°	330.1	325.4	323.9	325.4	325.4	327.5	327.5	327.5	327.0	329.1	328.6
60°	300.5	295.3	296.8	296.3	297.9	297.9	299.4	299.4	297.9	300.0	301.0
62.5°	270.9	269.8	267.7	267.7	269.3	269.8	268.3	269.8	270.3	271.9	272.9
65°	239.7	236.0	237.6	237.1	238.6	241.2	239.1	239.1	240.7	242.8	243.8
67.5°	210.0	206.9	208.5	209.0	209.0	210.0	208.5	209.5	211.6	214.2	215.7
70°	179.9	178.8	179.4	178.8	178.8	181.4	182.0	181.4	183.5	186.1	186.6
72.5°	149.2	150.2	149.2	150.2	151.3	149.7	150.2	151.8	153.9	155.4	158.0
75°	121.1	119.6	120.1	122.7	122.2	123.2	122.7	124.2	127.9	126.8	127.4
77.5°	93.6	93.1	93.6	94.1	94.6	96.2	95.7	98.3	98.8	99.3	100.3
80°	66.5	67.1	67.6	68.6	70.2	69.7	70.7	71.2	73.3	71.2	72.8
82.5°	45.2	44.7	45.7	45.7	47.3	48.3	46.8	46.8	46.8	46.3	46.3
85°	25.0	26.5	26.5	26.5	25.5	25.5	26.0	25.5	25.5	25.5	25.0
87.5°	10.9	10.9	10.4	9.9	10.4	9.9	9.9	9.4	8.8	8.8	8.3
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: P242135

CATALOG NUMBER: S121DR-S880D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1208.2	1208.2	1208.2	1208.2
2.5°	1160.9	1163.5	1160.3	1158.3
5°	1122.9	1122.9	1119.8	1118.8
7.5°	1080.3	1080.8	1075.1	1070.9
10°	1016.3	1013.2	1004.9	1000.2
12.5°	931.1	935.8	923.3	913.9
15°	856.7	843.7	848.9	843.2
17.5°	794.4	790.2	784.5	785.0
20°	739.8	736.7	733.5	734.1
22.5°	696.6	694.0	693.0	689.3
25°	660.8	661.8	659.2	659.2
27.5°	631.1	629.6	628.0	625.9
30°	603.0	603.6	602.0	601.0
32.5°	578.1	578.6	577.6	576.0
35°	553.7	553.1	553.7	552.1
37.5°	531.3	530.8	531.3	533.4
40°	508.4	509.0	507.4	509.5
42.5°	486.1	486.6	486.6	485.6
45°	461.6	463.2	463.7	464.8
47.5°	437.7	440.3	439.3	439.8
50°	413.8	413.3	413.3	412.8
52.5°	387.3	385.7	385.2	385.7
55°	355.6	357.7	357.7	357.7
57.5°	329.6	330.1	331.7	329.6
60°	303.1	303.1	303.6	307.8
62.5°	273.5	274.0	275.0	275.5
65°	244.9	246.4	245.9	245.4
67.5°	216.8	216.8	217.3	216.3
70°	187.7	187.7	187.7	190.3
72.5°	157.5	157.5	158.0	159.1
75°	129.4	129.4	129.4	127.9
77.5°	98.8	99.3	99.3	99.8
80°	71.7	71.2	71.2	70.7
82.5°	45.2	45.7	45.2	44.7
85°	25.0	25.5	23.9	23.9
87.5°	8.8	8.8	8.3	9.4
90°	0.0	0.0	0.0	0.0

(END OF REPORT)