

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: P242975

Luminaire Tested: **S121DR-H880D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242975
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-57)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121DR-H880D927-X4F0-XX-UDD-A-W
Description: DEFINE 1 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: 2746.1 lumens
Efficiency: N/A
Efficacy: 87.2 lumens/watt
Spacing Criteria (0/90/45): 1.13 / 1.2 / 1.28
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

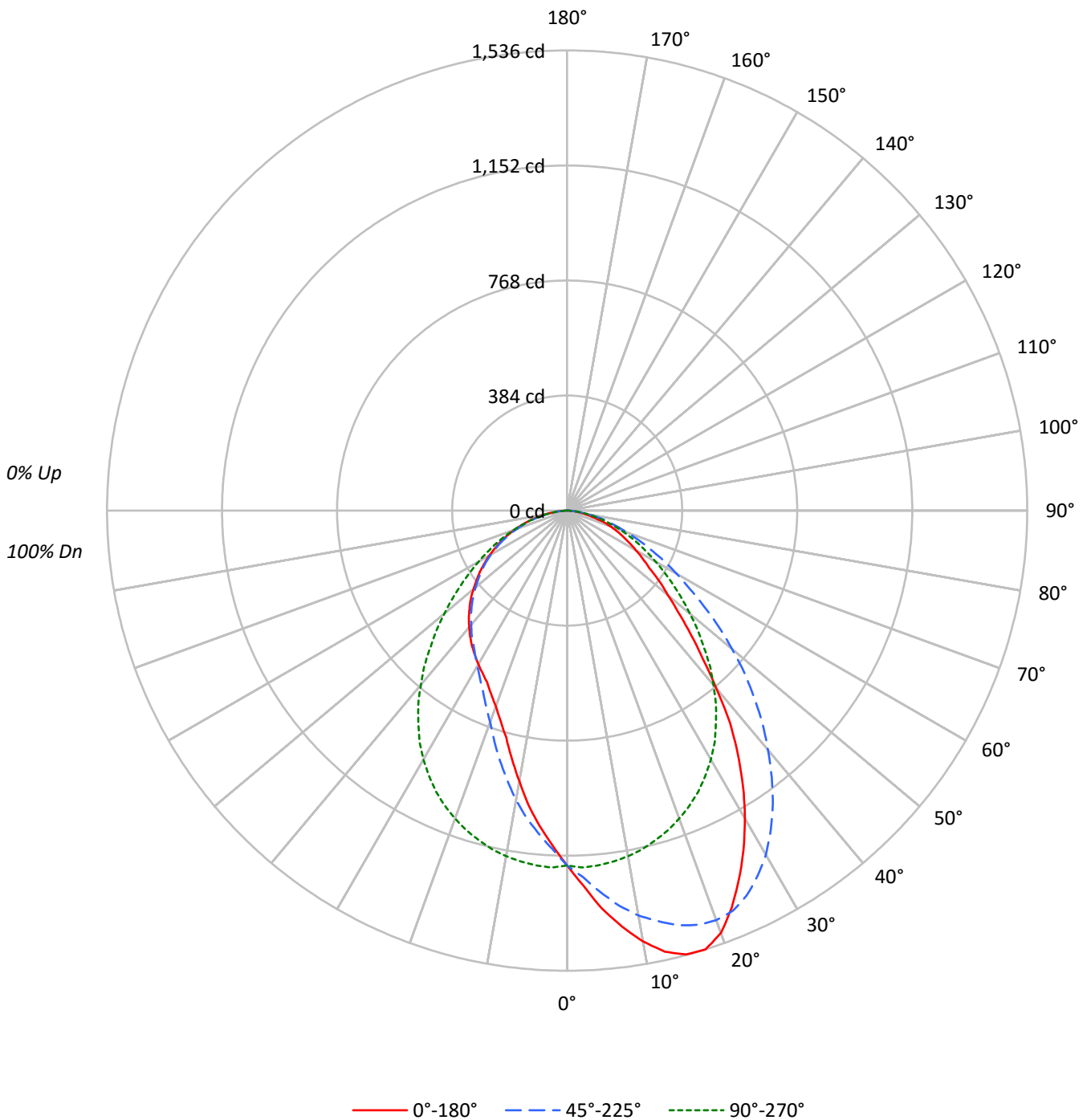
Input Watts (W): 31.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	81	98	91	85	80	88	83	79	84	80	77	81	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	72	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	53	45	40	51	45	40	50	44	40					38				
8	63	50	42	37	62	50	42	36	48	41	36	47	41	36	46	40	36					34				
9	59	46	38	33	58	46	38	33	45	38	33	44	37	33	43	37	33					31				
10	56	43	35	30	54	42	35	30	41	35	30	41	34	30	40	34	30					28				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	35105	35105	35105
5°	39665	35352	31408
10°	43942	35244	27611
15°	47052	34939	24083
20°	47316	34486	21927
25°	44380	33837	20678
30°	40601	32818	20268
35°	35954	31313	20014
40°	29961	29369	19668
45°	24425	27023	19309
50°	20273	24624	18821
55°	17347	22321	18333
60°	15716	20207	17748
65°	14513	18390	17121
70°	13385	16573	16113
75°	10807	14688	14848
80°	8634	11876	12695
85°	6493	8771	10369



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	113.2	4.1
10°-20°	324.3	11.8
20°-30°	472.2	17.2
30°-40°	526.4	19.2
40°-50°	486.6	17.7
50°-60°	387.7	14.1
60°-70°	265.4	9.7
70°-80°	137.8	5.0
80°-90°	32.6	1.2
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°	909.6	33.1
0°-40°	1436.0	52.3
0°-60°	2310.3	84.1
0°-90°	2746.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2746.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1185	1185	1185	1185	1185	
5°	1334	1278	1189	1083	1056	131
15°	1534	1433	1139	865	785	430
25°	1358	1418	1035	665	632	622
35°	994	1197	866	545	553	617
45°	583	882	645	450	461	454
55°	336	557	432	346	355	307
65°	207	308	262	238	244	206
75°	94	138	128	121	130	104
85°	19	26	26	27	30	23
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°	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8
2.5°	1253.5	1253.5	1250.1	1251.6	1249.7	1246.3	1241.1	1235.4	1228.2	1225.3	1223.9
5°	1333.6	1335.5	1333.1	1328.4	1327.4	1323.6	1312.2	1305.5	1290.2	1278.3	1274.5
7.5°	1400.4	1403.7	1403.7	1395.1	1391.3	1381.8	1373.7	1362.7	1343.6	1330.3	1319.3
10°	1460.5	1461.9	1456.7	1451.9	1444.3	1436.6	1422.8	1409.0	1388.5	1372.3	1354.1
12.5°	1508.2	1511.0	1507.2	1499.6	1490.5	1480.5	1463.4	1445.7	1425.7	1403.7	1384.2
15°	1533.9	1538.2	1538.7	1532.5	1525.8	1513.9	1501.5	1482.4	1460.5	1433.3	1401.3
17.5°	1535.9	1537.8	1539.2	1534.4	1530.1	1525.8	1513.4	1497.7	1476.7	1450.0	1420.4
20°	1500.6	1504.8	1509.6	1505.3	1507.2	1507.2	1502.0	1493.9	1476.7	1455.2	1426.6
22.5°	1434.7	1444.8	1451.0	1455.2	1459.5	1465.7	1471.9	1468.1	1461.4	1445.7	1419.9
25°	1357.5	1365.6	1377.5	1381.3	1384.7	1402.8	1413.7	1421.4	1421.4	1418.0	1400.9
27.5°	1275.4	1280.7	1290.7	1304.0	1316.4	1327.4	1350.3	1364.6	1376.1	1376.1	1367.0
30°	1186.7	1194.3	1206.3	1215.3	1230.6	1253.0	1272.1	1289.3	1315.5	1326.9	1325.0
32.5°	1093.2	1100.9	1113.3	1120.9	1142.8	1161.0	1190.5	1217.2	1247.3	1264.5	1274.9
35°	994.0	994.5	1015.5	1027.9	1047.0	1069.4	1105.6	1135.7	1168.6	1197.2	1219.6
37.5°	891.9	891.5	906.2	928.2	943.5	974.9	1012.1	1045.5	1091.3	1121.8	1157.1
40°	774.6	784.6	797.0	817.1	843.3	880.5	915.8	959.2	1005.0	1043.1	1080.8
42.5°	669.7	677.8	697.8	720.2	748.4	779.9	822.8	871.0	915.8	965.4	1007.4
45°	582.9	587.2	599.1	617.2	646.8	682.5	727.4	778.4	831.4	881.9	928.7
47.5°	502.7	515.6	521.8	538.5	560.0	593.4	640.1	685.9	746.9	803.2	854.3
50°	439.8	442.2	453.1	465.5	490.8	515.6	550.9	598.1	654.9	718.3	770.3
52.5°	388.3	387.3	396.4	407.3	425.0	451.2	481.7	527.5	575.7	638.7	695.4
55°	335.8	340.6	344.9	355.8	371.6	391.6	417.4	456.0	501.3	557.1	616.7
57.5°	299.5	300.0	302.4	311.5	322.0	337.7	362.5	395.4	436.0	484.6	542.3
60°	265.2	265.7	270.0	272.8	280.0	293.3	312.4	339.6	375.4	422.1	472.7
62.5°	235.6	236.1	238.5	241.3	248.0	253.3	269.5	292.9	322.0	363.5	406.9
65°	207.0	207.5	207.5	211.3	215.6	220.4	231.8	246.6	274.7	307.6	346.3
67.5°	179.3	182.2	181.2	184.1	187.9	190.3	198.4	211.8	230.9	258.5	291.9
70°	154.5	154.1	155.5	156.9	158.4	162.2	167.4	176.5	192.7	212.3	241.8
72.5°	127.8	125.0	126.9	128.8	131.2	134.0	138.3	145.0	157.4	173.1	195.1
75°	94.4	93.0	95.9	96.3	100.6	104.5	109.2	115.9	125.0	138.3	152.6
77.5°	68.7	70.6	71.5	72.5	73.0	77.3	82.5	88.2	93.5	105.9	116.9
80°	50.6	50.6	51.0	52.0	52.9	53.9	57.2	61.1	65.3	73.0	83.9
82.5°	35.3	34.8	34.8	35.3	35.8	36.7	38.2	39.6	43.4	47.2	52.9
85°	19.1	19.6	20.0	19.1	19.6	20.0	21.0	22.4	23.4	26.2	28.6
87.5°	6.7	8.1	7.6	7.6	8.1	8.1	8.1	9.1	9.1	9.1	10.5
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°	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8
2.5°	1222.5	1221.1	1217.2	1209.6	1204.4	1194.8	1192.9	1192.4	1183.8	1171.0	1170.0
5°	1267.8	1256.8	1247.8	1234.4	1221.1	1204.8	1195.3	1188.6	1173.4	1154.3	1145.7
7.5°	1309.3	1293.6	1274.9	1254.0	1234.4	1211.5	1194.8	1181.5	1159.0	1134.7	1119.9
10°	1342.7	1323.1	1299.8	1271.6	1244.9	1214.8	1191.5	1171.4	1141.9	1111.8	1091.8
12.5°	1365.6	1343.6	1316.9	1284.0	1251.6	1217.2	1183.4	1158.1	1120.9	1086.1	1060.3
15°	1391.3	1355.1	1327.4	1290.2	1252.1	1211.0	1175.3	1139.0	1096.1	1057.0	1023.6
17.5°	1397.5	1364.1	1331.2	1290.2	1250.6	1200.5	1159.0	1119.0	1071.3	1023.1	990.7
20°	1403.3	1365.1	1324.6	1280.2	1238.7	1187.2	1140.4	1093.7	1038.4	986.4	945.8
22.5°	1399.0	1361.8	1316.4	1266.4	1221.5	1168.6	1118.0	1066.5	1004.5	950.1	904.3
25°	1386.6	1352.2	1305.5	1250.6	1196.7	1142.8	1089.9	1035.0	967.8	904.8	854.3
27.5°	1361.3	1330.8	1285.9	1227.7	1171.0	1111.3	1056.0	998.8	926.8	862.4	808.5
30°	1327.4	1303.1	1257.8	1199.6	1138.1	1074.1	1017.4	959.2	884.3	814.2	757.0
32.5°	1280.7	1263.5	1224.4	1167.6	1101.3	1033.6	975.4	916.3	836.1	769.4	711.2
35°	1228.2	1220.1	1185.3	1128.5	1059.8	988.8	926.3	865.7	791.8	721.2	665.4
37.5°	1166.7	1172.4	1140.9	1084.6	1013.6	941.1	875.2	816.6	741.7	674.0	619.1
40°	1105.6	1114.2	1090.4	1037.9	964.0	889.1	822.3	759.3	689.7	630.1	575.7
42.5°	1037.9	1055.1	1036.5	985.4	913.4	834.2	764.6	705.9	639.6	584.8	537.1
45°	965.9	987.8	980.2	928.2	857.1	779.4	705.9	644.9	591.4	542.8	499.4
47.5°	892.9	918.2	914.8	871.4	803.2	723.6	651.1	591.0	541.8	502.7	466.5
50°	818.0	843.8	844.2	805.6	742.2	666.3	588.6	534.2	495.1	460.8	431.2
52.5°	745.0	770.8	771.3	741.2	677.8	603.8	532.3	482.7	449.3	422.6	397.8
55°	668.7	698.8	701.6	672.5	616.2	545.2	479.4	432.1	402.6	385.4	363.9
57.5°	591.4	623.9	629.6	606.2	551.9	485.6	430.2	384.9	361.1	349.1	332.9
60°	519.4	551.4	560.4	533.7	488.9	432.1	379.2	341.0	322.0	312.4	301.0
62.5°	453.1	485.1	489.9	467.0	422.6	374.9	334.8	300.0	284.3	277.1	268.1
65°	388.3	416.9	423.1	402.6	362.5	322.9	287.6	262.3	248.5	242.3	236.6
67.5°	328.6	355.3	359.6	341.0	307.6	273.8	248.0	226.1	216.5	208.4	206.1
70°	272.4	296.7	300.5	281.9	255.7	228.0	206.5	191.3	182.2	177.4	174.1
72.5°	220.4	239.4	242.8	231.3	210.8	186.5	169.8	156.9	151.2	146.9	145.5
75°	172.2	190.8	191.3	181.2	164.6	147.9	135.0	128.3	121.6	117.3	116.4
77.5°	132.1	142.6	144.0	138.8	122.6	112.1	102.1	97.3	94.9	90.6	90.6
80°	94.4	100.6	103.0	95.4	87.8	78.7	73.5	69.6	67.7	64.9	64.9
82.5°	58.7	63.9	66.8	61.1	57.2	52.5	48.7	46.3	44.8	43.4	42.9
85°	32.0	35.8	35.8	33.9	30.5	28.1	26.7	25.8	25.3	24.8	24.3
87.5°	11.4	14.3	12.9	13.4	11.9	11.4	11.0	11.0	11.4	10.5	10.5
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°	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8	1184.8
2.5°	1163.8	1161.4	1154.3	1147.6	1142.3	1130.9	1128.5	1129.5	1129.5	1129.9	1124.7
5°	1135.7	1125.7	1114.2	1103.7	1095.6	1082.7	1075.6	1073.7	1072.2	1069.4	1064.1
7.5°	1103.7	1092.3	1076.1	1066.5	1049.3	1035.0	1025.0	1018.3	1014.0	1007.8	999.3
10°	1071.3	1054.6	1036.5	1017.4	1000.2	981.1	965.4	957.8	948.7	942.5	933.0
12.5°	1038.8	1015.5	990.7	968.7	945.4	922.9	906.7	896.2	880.0	871.0	860.9
15°	996.4	967.8	946.8	908.6	897.2	864.8	845.2	837.1	821.3	818.5	802.7
17.5°	956.3	923.4	892.4	860.5	829.9	807.5	790.8	780.3	767.9	760.3	749.8
20°	906.2	871.9	834.7	801.3	775.6	751.7	741.2	727.9	720.7	713.1	705.4
22.5°	858.6	816.6	779.4	752.2	726.0	706.4	694.9	685.9	679.7	672.1	666.8
25°	807.5	768.4	734.1	705.9	680.6	665.4	655.8	650.6	646.8	641.1	637.7
27.5°	758.9	719.3	685.4	663.9	643.4	630.1	625.3	620.5	615.8	613.9	613.4
30°	706.9	670.6	643.0	624.4	605.8	598.6	596.2	591.4	592.4	592.9	591.4
32.5°	663.0	627.7	606.7	591.0	576.7	571.4	570.9	569.0	569.5	571.9	570.9
35°	617.7	591.4	570.5	557.6	548.5	544.7	545.2	545.7	548.5	549.0	550.9
37.5°	579.0	553.8	539.9	527.5	523.2	523.2	523.7	524.2	526.6	529.4	530.4
40°	540.9	520.4	508.5	500.3	498.0	498.0	499.9	502.3	503.7	506.5	507.0
42.5°	506.5	489.4	480.3	472.2	473.2	475.5	476.0	477.4	481.3	481.7	482.7
45°	472.7	459.8	450.7	448.4	448.4	450.3	452.6	453.6	456.5	456.9	457.9
47.5°	443.6	430.2	423.6	421.2	422.6	425.0	428.3	429.8	432.1	431.7	434.0
50°	411.2	400.2	394.9	394.0	394.9	399.2	400.7	404.0	406.4	407.8	408.8
52.5°	380.1	371.6	369.2	368.7	370.6	373.5	375.4	378.7	381.6	381.6	381.1
55°	350.6	342.9	340.1	342.5	344.9	346.3	350.1	352.0	354.9	355.3	354.9
57.5°	320.5	313.8	312.9	313.8	318.6	321.5	323.9	323.9	325.3	325.8	327.2
60°	289.5	285.2	284.3	286.7	291.9	293.8	295.2	295.7	297.6	296.7	299.5
62.5°	260.4	256.1	258.0	260.4	262.3	265.2	266.2	268.5	268.1	269.0	270.4
65°	230.4	228.0	228.5	231.3	233.7	237.5	237.5	237.5	239.9	239.9	240.9
67.5°	201.3	199.9	201.8	204.1	204.6	207.0	206.5	209.4	211.3	212.3	213.2
70°	173.1	172.2	172.2	174.6	177.0	177.9	178.9	180.8	181.2	182.7	185.1
72.5°	146.4	143.6	144.0	147.4	147.4	149.3	151.7	151.7	154.5	155.0	157.4
75°	117.3	116.4	117.3	119.2	121.6	121.2	124.0	123.5	124.5	127.8	128.3
77.5°	91.6	90.1	92.5	93.5	94.0	94.4	95.4	97.8	99.7	101.1	101.6
80°	65.8	65.3	67.7	68.7	68.2	69.2	70.6	73.0	73.0	73.9	75.4
82.5°	44.4	43.4	44.8	46.3	47.2	47.7	47.7	48.7	49.1	50.1	50.1
85°	25.3	25.3	26.2	26.7	27.7	27.2	28.1	27.7	28.6	29.6	29.1
87.5°	11.0	11.0	11.0	11.0	11.4	11.4	11.9	11.9	11.4	11.9	11.0
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: P242975

CATALOG NUMBER: S121DR-H880D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1184.8	1184.8	1184.8	1184.8
2.5°	1122.8	1123.7	1121.4	1119.0
5°	1063.6	1060.3	1057.0	1056.0
7.5°	997.4	997.4	989.2	991.1
10°	926.3	923.4	917.2	917.7
12.5°	857.1	854.7	851.4	850.0
15°	794.6	796.1	798.5	785.1
17.5°	745.5	741.7	739.8	737.4
20°	701.6	699.7	695.9	695.4
22.5°	667.8	663.5	662.5	663.0
25°	635.3	635.3	635.3	632.5
27.5°	612.4	612.4	611.0	611.5
30°	592.4	593.4	591.9	592.4
32.5°	573.3	573.8	572.8	572.4
35°	551.9	553.3	552.8	553.3
37.5°	531.3	532.3	531.3	531.3
40°	508.0	510.4	509.9	508.5
42.5°	484.6	484.6	486.0	485.6
45°	460.3	459.3	459.3	460.8
47.5°	434.5	436.4	435.5	436.0
50°	410.7	410.2	408.8	408.3
52.5°	382.5	383.5	383.0	380.6
55°	355.3	355.3	354.9	354.9
57.5°	326.2	327.7	327.2	327.2
60°	298.6	299.5	300.0	299.5
62.5°	270.4	270.9	270.4	270.9
65°	243.3	243.3	242.8	244.2
67.5°	213.7	214.2	213.7	214.6
70°	185.5	186.5	187.0	186.0
72.5°	158.8	157.9	158.4	157.4
75°	129.3	129.7	129.3	129.7
77.5°	101.6	102.1	101.6	102.1
80°	74.9	74.9	75.4	74.4
82.5°	50.6	50.6	52.0	50.6
85°	29.6	29.6	28.6	30.5
87.5°	11.4	11.4	11.4	11.4
90°	0.0	0.0	0.0	0.0

(END OF REPORT)