

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: P243098

Luminaire Tested: **S121RDR-H880D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243098  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-67)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S121RDR-H880D930-X4F0-XX-UDD-A-W  
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2295.0 lumens  
Efficiency: N/A  
Efficacy: 72.9 lumens/watt  
Spacing Criteria (0/90/45): 0.89 / 1.21 / 1.07  
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')  
CIE Type: Direct

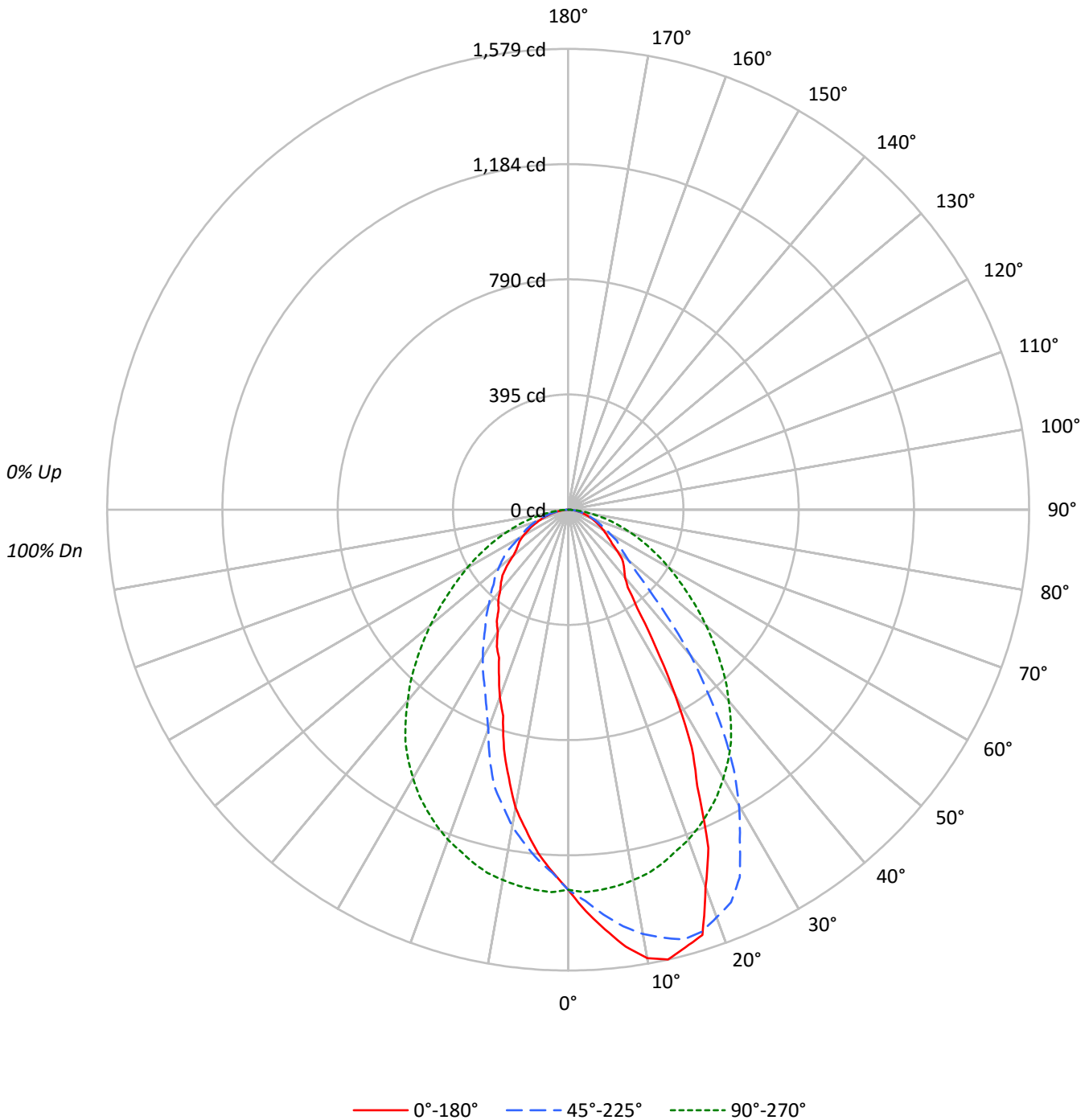
Input Watts (W): 31.5  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89					87				
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78					76				
3	94	85	78	73	92	84	77	72	81	75	71	78	73	70	76	72	68					66				
4	87	77	69	63	85	76	69	63	73	67	62	71	66	61	69	64	61					59				
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54					52				
6	76	64	56	50	74	63	55	50	61	55	50	60	54	49	58	53	49					47				
7	71	59	51	45	69	58	50	45	56	50	45	55	49	44	54	48	44					42				
8	66	54	46	41	65	53	46	41	52	46	41	51	45	41	50	44	40					39				
9	62	50	43	38	61	50	42	38	49	42	37	48	42	37	47	41	37					35				
10	59	47	39	35	58	46	39	35	45	39	34	44	38	34	44	38	34					33				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	38572	38572	38572
5°	42925	38880	35129
10°	46935	38770	31191
15°	47614	38442	26049
20°	43400	37951	21545
25°	34184	37263	18328
30°	24989	36362	16525
35°	14913	35155	15022
40°	11696	33074	14013
45°	11272	30874	13329
50°	10049	28400	11312
55°	8771	25839	10802
60°	8202	23650	10471
65°	7642	21510	9703
70°	7225	19388	8845
75°	6628	17252	7865
80°	6023	13992	6876
85°	5677	10675	4997



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	124.3	5.4
10°-20°	346.7	15.1
20°-30°	461.0	20.1
30°-40°	439.7	19.2
40°-50°	364.9	15.9
50°-60°	271.4	11.8
60°-70°	175.7	7.7
70°-80°	89.4	3.9
80°-90°	21.9	1.0
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°	931.9	40.6
0°-40°	1371.7	59.8
0°-60°	2008.0	87.5
0°-90°	2295.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2295.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1302	1302	1302	1302	1302	
5°	1443	1393	1307	1203	1181	141
15°	1552	1525	1253	980	849	432
25°	1046	1390	1140	674	561	485
35°	412	923	972	495	415	281
45°	269	398	737	361	318	205
55°	170	216	500	261	209	154
65°	109	124	307	157	138	109
75°	58	63	151	78	69	61
85°	17	16	31	17	15	18
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°	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8
2.5°	1376.4	1373.0	1376.9	1375.4	1369.1	1370.5	1362.7	1357.8	1346.0	1341.6	1341.6
5°	1443.2	1448.1	1445.1	1446.1	1439.7	1435.8	1427.5	1418.2	1403.4	1392.6	1388.7
7.5°	1509.9	1511.4	1512.9	1509.0	1501.6	1494.7	1482.9	1469.2	1453.0	1439.3	1428.5
10°	1560.0	1563.5	1561.5	1555.6	1550.2	1539.9	1527.1	1512.4	1494.7	1476.6	1463.3
12.5°	1578.7	1581.6	1586.0	1582.6	1582.1	1577.2	1564.4	1546.3	1524.7	1502.1	1486.9
15°	1552.2	1550.2	1562.0	1559.0	1558.1	1556.1	1559.5	1555.6	1544.3	1524.7	1506.0
17.5°	1527.6	1526.6	1538.4	1541.4	1536.9	1530.6	1526.6	1521.7	1516.3	1516.8	1514.4
20°	1376.4	1406.4	1412.3	1428.0	1461.3	1483.4	1505.5	1504.5	1488.8	1486.4	1485.4
22.5°	1254.7	1266.0	1260.6	1286.1	1304.3	1344.0	1382.8	1431.9	1464.8	1456.4	1451.0
25°	1045.6	1080.9	1097.1	1129.0	1175.2	1225.7	1247.8	1299.8	1350.4	1389.7	1419.6
27.5°	916.0	923.8	934.1	967.0	984.2	1030.4	1112.8	1183.5	1230.6	1273.3	1352.4
30°	730.4	733.9	769.7	787.9	838.4	883.6	955.3	1012.2	1106.9	1170.3	1231.1
32.5°	557.6	554.7	594.0	615.1	665.1	726.0	806.0	859.0	951.8	1055.4	1128.0
35°	412.3	411.8	433.0	447.7	502.7	549.3	650.9	720.1	821.7	923.3	1017.1
37.5°	335.8	335.3	339.7	352.5	375.5	428.0	477.1	579.7	678.9	779.0	896.3
40°	302.4	304.8	305.8	311.7	319.6	335.3	365.2	436.9	534.1	653.4	771.2
42.5°	284.7	284.7	285.7	287.2	291.1	295.5	313.7	341.2	419.2	514.4	646.5
45°	269.0	269.5	270.5	271.5	270.5	272.9	281.3	292.6	323.0	398.1	525.7
47.5°	250.3	249.9	252.3	253.8	255.7	258.7	259.2	265.1	278.3	317.6	410.4
50°	218.0	218.4	220.9	226.8	233.2	238.6	242.0	245.9	250.3	269.0	318.1
52.5°	188.5	189.0	190.5	194.9	200.8	207.6	218.4	227.3	230.7	236.6	264.1
55°	169.8	169.8	171.8	174.3	175.7	180.6	188.0	197.8	210.6	215.5	227.3
57.5°	154.1	154.1	155.1	155.1	157.1	159.5	164.4	169.4	180.2	195.9	203.2
60°	138.4	138.4	139.4	139.4	141.9	142.8	146.3	149.2	155.1	165.9	180.6
62.5°	123.7	122.7	123.7	124.2	125.7	127.1	129.6	133.0	136.5	142.8	153.6
65°	109.0	108.5	109.5	110.4	111.4	113.4	114.9	117.3	120.3	123.7	129.1
67.5°	96.2	95.7	96.2	97.7	97.2	98.2	100.6	101.6	104.6	108.0	112.4
70°	83.4	82.5	83.4	83.4	83.9	85.4	85.4	87.9	90.3	92.3	96.2
72.5°	69.7	70.2	69.7	70.2	71.2	71.7	72.7	74.1	75.6	77.6	80.0
75°	57.9	57.9	58.4	58.9	59.9	59.9	60.4	61.4	62.3	63.3	66.3
77.5°	46.1	46.6	47.1	47.6	47.6	48.1	48.6	49.1	50.6	51.1	52.5
80°	35.3	35.8	35.8	35.8	36.8	35.8	36.8	37.8	37.8	38.3	39.3
82.5°	25.5	26.0	25.5	26.0	26.5	26.5	26.0	26.5	26.5	27.5	27.5
85°	16.7	15.7	15.7	15.7	15.7	15.7	16.2	16.7	16.2	16.2	16.7
87.5°	6.9	6.9	6.9	6.9	7.4	6.9	7.4	7.4	7.4	6.9	7.4
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°	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8
2.5°	1344.0	1340.1	1336.7	1330.8	1323.4	1312.6	1311.1	1311.6	1298.4	1285.6	1283.7
5°	1380.4	1374.0	1363.2	1350.4	1338.6	1320.5	1312.6	1307.2	1287.1	1269.9	1263.0
7.5°	1419.1	1403.9	1389.2	1369.1	1349.4	1325.9	1311.1	1299.8	1273.3	1250.8	1239.0
10°	1449.6	1430.9	1409.8	1384.3	1357.3	1328.3	1306.2	1288.6	1256.7	1228.7	1213.9
12.5°	1471.2	1450.1	1425.0	1394.6	1363.7	1325.4	1298.4	1274.8	1236.0	1202.7	1185.0
15°	1482.5	1459.9	1429.0	1395.6	1363.7	1323.4	1287.6	1253.2	1214.9	1173.2	1151.1
17.5°	1492.8	1463.3	1428.5	1390.2	1357.8	1315.6	1271.4	1226.7	1183.5	1144.2	1108.4
20°	1485.4	1460.4	1421.6	1381.8	1345.5	1296.4	1249.8	1203.6	1149.6	1104.0	1068.2
22.5°	1451.0	1446.6	1404.9	1362.2	1320.5	1273.3	1219.3	1173.7	1115.8	1061.8	1018.6
25°	1410.8	1405.4	1382.8	1337.2	1290.0	1240.9	1192.3	1139.8	1073.1	1017.1	967.5
27.5°	1376.9	1364.6	1348.4	1305.7	1255.2	1206.1	1156.0	1105.0	1033.8	971.5	915.0
30°	1308.2	1320.0	1301.8	1272.4	1213.9	1166.3	1118.2	1062.8	992.1	920.4	862.5
32.5°	1199.2	1270.4	1252.2	1228.7	1171.2	1119.2	1073.6	1019.1	941.0	870.3	810.4
35°	1103.0	1164.4	1205.6	1177.1	1126.6	1066.2	1019.6	971.9	890.5	818.3	760.9
37.5°	1009.7	1075.0	1143.7	1117.7	1076.0	1011.2	962.1	915.0	839.4	766.8	709.3
40°	887.5	982.7	1049.0	1059.3	1016.6	951.3	903.7	855.1	788.4	716.2	654.8
42.5°	770.2	892.4	945.9	998.9	955.3	893.9	840.9	799.6	735.3	672.0	605.3
45°	647.5	786.4	865.4	906.2	890.5	834.5	776.6	736.8	682.8	623.9	560.6
47.5°	540.9	673.0	785.9	809.0	824.2	769.2	715.2	675.0	628.3	579.7	519.4
50°	429.0	566.0	686.7	728.5	757.4	707.4	650.9	616.1	576.8	533.1	479.6
52.5°	333.8	461.9	588.6	659.7	669.6	643.5	591.5	557.1	525.7	486.5	437.9
55°	265.1	364.2	490.9	573.8	583.2	576.8	530.2	500.2	477.1	444.2	403.5
57.5°	219.9	283.2	397.6	493.3	507.1	513.0	474.7	447.7	427.1	401.0	364.2
60°	190.0	223.4	310.7	404.5	442.3	452.6	418.7	399.1	381.9	358.3	324.0
62.5°	167.9	183.1	237.6	327.9	376.5	385.3	368.2	353.4	339.2	316.6	286.2
65°	139.9	156.1	183.1	253.3	313.2	317.6	321.0	306.8	295.5	276.9	249.9
67.5°	117.3	130.1	147.8	194.4	251.3	264.1	272.9	266.5	255.7	237.1	214.0
70°	99.6	107.0	119.8	145.8	191.9	219.4	228.7	223.8	218.4	198.3	178.7
72.5°	83.0	88.8	96.2	111.9	144.8	174.3	188.0	185.6	179.7	164.4	148.2
75°	68.7	71.2	77.1	85.9	105.0	132.5	148.7	150.7	143.8	129.6	116.8
77.5°	54.0	56.5	59.9	65.3	77.6	96.2	109.5	114.4	110.0	99.6	86.9
80°	41.2	42.7	45.2	47.6	52.5	65.3	79.0	82.0	79.5	71.2	63.3
82.5°	27.5	28.5	30.4	32.4	34.9	40.7	52.5	54.5	54.0	46.6	41.2
85°	16.7	16.7	17.2	18.7	19.6	22.1	28.5	31.4	29.9	25.0	22.6
87.5°	6.9	7.4	6.9	6.9	6.9	7.4	9.3	12.8	9.8	7.4	6.9
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°	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8	1301.8
2.5°	1278.3	1276.3	1268.9	1262.1	1254.2	1244.9	1245.4	1246.8	1243.4	1242.4	1245.9
5°	1253.2	1246.3	1235.1	1223.8	1214.9	1203.1	1196.3	1199.7	1197.3	1192.8	1189.9
7.5°	1226.7	1216.9	1200.7	1186.5	1174.7	1152.6	1147.7	1141.8	1136.9	1127.1	1125.1
10°	1195.3	1181.1	1160.4	1140.3	1118.7	1101.5	1085.3	1078.5	1065.2	1056.4	1053.9
12.5°	1162.9	1139.3	1116.3	1086.8	1062.3	1037.2	1023.0	1013.2	999.9	978.3	968.0
15°	1129.5	1093.7	1062.8	1030.4	1013.7	979.8	952.8	922.4	906.2	869.8	848.7
17.5°	1084.8	1043.6	1001.9	975.4	940.5	893.4	848.2	832.5	808.0	784.4	760.9
20°	1024.5	986.7	946.9	907.1	854.1	799.6	782.5	755.5	728.5	714.2	702.0
22.5°	969.0	928.3	881.1	828.6	774.1	731.4	708.8	689.2	672.5	659.7	645.5
25°	916.5	874.3	807.0	753.5	705.9	674.5	663.2	637.7	620.0	610.7	598.4
27.5°	858.5	800.6	746.6	691.2	648.9	631.3	605.3	585.1	566.5	548.3	543.9
30°	803.6	739.3	685.8	640.6	609.7	585.1	558.6	535.1	522.8	515.9	504.6
32.5°	749.1	683.8	633.7	598.4	565.0	539.0	514.0	501.7	483.0	467.8	458.0
35°	690.7	633.7	594.0	552.7	520.8	495.3	482.5	454.6	444.2	439.8	429.5
37.5°	639.1	588.6	548.3	516.9	482.0	461.4	436.4	430.0	416.3	404.5	401.0
40°	596.4	548.8	511.0	470.3	448.7	421.7	409.4	392.2	387.3	382.9	375.0
42.5°	549.8	509.0	465.8	438.4	406.4	394.2	375.0	370.1	358.3	353.9	351.0
45°	510.0	472.2	431.0	397.6	379.4	361.3	353.9	341.7	336.3	330.9	325.5
47.5°	471.2	432.0	399.1	367.7	347.5	339.2	325.9	317.1	311.2	305.8	300.4
50°	435.4	395.6	358.8	336.3	322.0	310.2	301.9	294.5	286.2	274.4	262.1
52.5°	396.6	360.8	330.9	308.8	296.0	284.7	277.3	264.6	248.4	235.6	229.7
55°	357.9	324.0	298.0	280.3	271.5	260.7	244.0	225.3	215.0	213.0	211.6
57.5°	325.0	293.1	269.0	255.3	244.9	225.8	208.1	201.3	198.3	197.3	196.4
60°	288.1	259.7	242.5	227.8	210.6	192.4	187.0	186.0	183.1	181.6	180.6
62.5°	254.3	229.7	214.0	196.4	178.2	174.8	170.8	168.4	166.9	163.5	162.0
65°	221.4	201.8	184.6	165.9	159.5	157.1	153.6	150.2	146.3	143.8	141.9
67.5°	190.0	170.8	152.7	145.8	142.4	138.4	134.0	129.1	127.1	123.7	123.2
70°	159.0	141.4	131.6	127.1	120.8	117.3	112.4	110.4	107.0	105.5	104.1
72.5°	129.6	116.8	112.9	106.5	102.1	96.7	94.2	92.3	90.3	87.9	87.9
75°	101.1	97.7	90.3	85.4	81.0	78.0	77.1	73.6	73.1	71.7	70.7
77.5°	80.5	73.6	71.2	65.8	62.8	61.4	60.4	58.4	56.5	56.0	55.5
80°	56.9	53.5	50.6	48.1	45.7	44.7	43.7	43.2	42.2	41.2	40.7
82.5°	37.3	35.3	33.4	31.9	31.4	29.9	29.0	28.5	27.5	27.5	27.5
85°	20.1	19.6	18.7	17.7	16.7	16.7	16.2	15.7	15.7	14.2	14.2
87.5°	6.4	6.4	5.9	5.9	4.9	5.4	4.9	4.9	4.4	4.9	4.9
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: P243098

CATALOG NUMBER: S121RDR-H880D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1301.8	1301.8	1301.8	1301.8
2.5°	1241.9	1241.9	1240.0	1241.9
5°	1187.9	1183.5	1182.0	1181.1
7.5°	1119.2	1115.3	1111.4	1107.4
10°	1049.0	1043.1	1039.7	1036.7
12.5°	957.7	950.3	936.6	940.5
15°	845.3	845.8	813.9	849.2
17.5°	753.5	756.0	743.2	741.2
20°	695.1	694.1	689.2	683.3
22.5°	635.2	630.8	628.8	619.5
25°	579.2	571.4	573.8	560.6
27.5°	538.5	532.1	530.2	529.2
30°	497.8	484.5	480.1	483.0
32.5°	456.5	455.5	454.1	454.6
35°	421.7	419.7	415.3	415.3
37.5°	397.6	398.1	395.6	393.7
40°	368.2	365.7	365.2	362.3
42.5°	347.1	342.1	340.2	340.7
45°	322.5	319.6	317.1	318.1
47.5°	293.5	290.6	285.2	283.7
50°	254.3	250.3	247.9	245.4
52.5°	224.8	224.3	223.4	222.9
55°	210.6	209.1	209.1	209.1
57.5°	195.9	194.9	194.4	195.4
60°	179.7	178.7	176.7	176.7
62.5°	159.5	158.6	158.1	156.1
65°	139.4	138.9	137.9	138.4
67.5°	120.8	120.3	120.3	118.8
70°	102.6	102.6	101.1	102.1
72.5°	85.9	85.4	85.4	85.4
75°	69.7	69.2	68.7	68.7
77.5°	55.0	55.0	54.0	54.0
80°	39.8	39.8	39.3	40.3
82.5°	26.5	27.5	26.5	26.5
85°	14.2	14.7	14.7	14.7
87.5°	4.4	3.9	3.9	3.9
90°	0.0	0.0	0.0	0.0

(END OF REPORT)