

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: P243107

Luminaire Tested: **S121RDR-H685D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243107
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-H685D940-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1946.4 lumens
Efficiency: N/A
Efficacy: 82.5 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

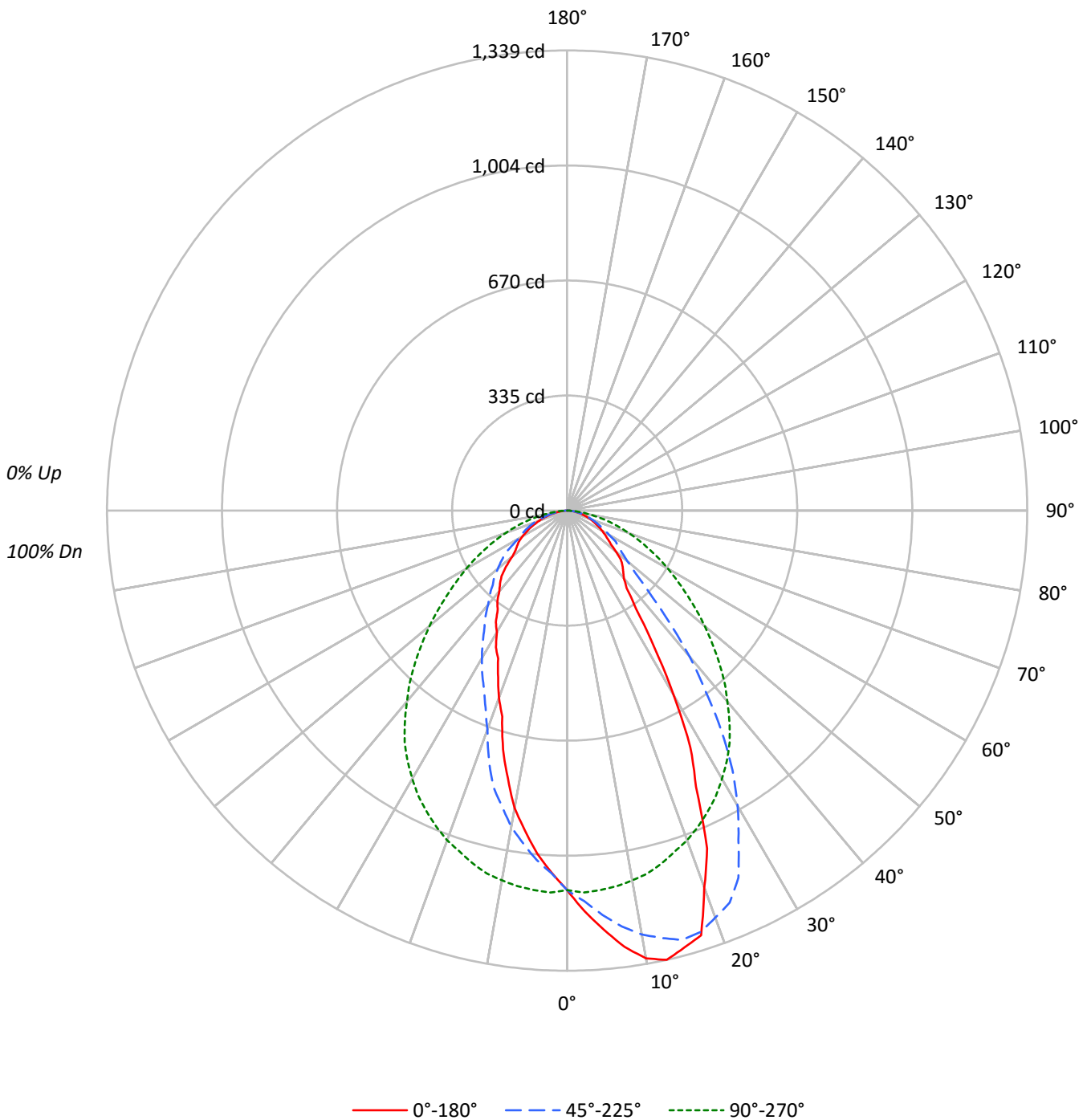
Input Watts (W): 23.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	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°	32714	32714	32714
5°	36405	32973	29790
10°	39805	32879	26452
15°	40380	32601	22092
20°	36806	32187	18272
25°	28989	31604	15542
30°	21195	30837	14014
35°	12649	29816	12739
40°	9917	28050	11882
45°	9558	26185	11305
50°	8518	24085	9597
55°	7439	21913	9159
60°	6957	20059	8883
65°	6478	18243	8231
70°	6134	16443	7502
75°	5621	14631	6674
80°	5119	11859	5819
85°	4827	9043	4250



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	105.4	5.4
10°-20°	294.0	15.1
20°-30°	390.9	20.1
30°-40°	372.9	19.2
40°-50°	309.5	15.9
50°-60°	230.2	11.8
60°-70°	149.0	7.7
70°-80°	75.9	3.9
80°-90°	18.6	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°	790.4	40.6
0°-40°	1163.3	59.8
0°-60°	1703.0	87.5
0°-90°	1946.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1946.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1104	1104	1104	1104	1104	
5°	1224	1181	1109	1020	1002	120
15°	1316	1293	1063	831	720	366
25°	887	1179	967	572	475	411
35°	350	783	824	420	352	238
45°	228	338	625	306	270	174
55°	144	183	424	221	177	131
65°	92	105	260	133	117	92
75°	49	54	128	66	58	52
85°	14	14	27	14	12	15
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°	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1
2.5°	1167.3	1164.4	1167.8	1166.5	1161.1	1162.3	1155.7	1151.5	1141.5	1137.8	1137.8
5°	1224.0	1228.1	1225.6	1226.5	1221.0	1217.7	1210.6	1202.7	1190.2	1181.1	1177.7
7.5°	1280.6	1281.8	1283.1	1279.7	1273.5	1267.7	1257.7	1246.0	1232.3	1220.6	1211.5
10°	1323.0	1326.0	1324.3	1319.3	1314.7	1306.0	1295.1	1282.7	1267.7	1252.3	1241.0
12.5°	1338.9	1341.4	1345.1	1342.2	1341.8	1337.6	1326.8	1311.4	1293.1	1273.9	1261.0
15°	1316.4	1314.7	1324.7	1322.2	1321.4	1319.7	1322.6	1319.3	1309.7	1293.1	1277.2
17.5°	1295.6	1294.7	1304.7	1307.2	1303.5	1298.1	1294.7	1290.6	1286.0	1286.4	1284.3
20°	1167.3	1192.7	1197.7	1211.0	1239.4	1258.1	1276.8	1276.0	1262.7	1260.6	1259.8
22.5°	1064.1	1073.7	1069.1	1090.7	1106.1	1139.9	1172.7	1214.4	1242.3	1235.2	1230.6
25°	886.7	916.7	930.5	957.5	996.6	1039.5	1058.3	1102.4	1145.3	1178.6	1204.0
27.5°	776.8	783.5	792.2	820.1	834.7	873.8	943.8	1003.7	1043.7	1079.9	1146.9
30°	619.5	622.4	652.8	668.2	711.1	749.4	810.1	858.4	938.8	992.5	1044.1
32.5°	472.9	470.4	503.7	521.6	564.1	615.7	683.6	728.5	807.2	895.1	956.7
35°	349.7	349.3	367.2	379.7	426.3	465.9	552.0	610.7	696.9	783.1	862.6
37.5°	284.8	284.3	288.1	298.9	318.5	363.0	404.7	491.7	575.8	660.7	760.2
40°	256.4	258.5	259.4	264.4	271.0	284.3	309.7	370.5	452.9	554.1	654.0
42.5°	241.5	241.5	242.3	243.5	246.9	250.6	266.0	289.3	355.5	436.3	548.3
45°	228.1	228.6	229.4	230.2	229.4	231.5	238.5	248.1	273.9	337.6	445.9
47.5°	212.3	211.9	214.0	215.2	216.9	219.4	219.8	224.8	236.0	269.4	348.0
50°	184.8	185.3	187.3	192.3	197.7	202.3	205.2	208.6	212.3	228.1	269.8
52.5°	159.9	160.3	161.5	165.3	170.3	176.1	185.3	192.8	195.7	200.7	224.0
55°	144.0	144.0	145.7	147.8	149.0	153.2	159.4	167.8	178.6	182.8	192.8
57.5°	130.7	130.7	131.6	131.6	133.2	135.3	139.5	143.6	152.8	166.1	172.4
60°	117.4	117.4	118.2	118.2	120.3	121.1	124.1	126.6	131.6	140.7	153.2
62.5°	104.9	104.1	104.9	105.3	106.6	107.8	109.9	112.8	115.7	121.1	130.3
65°	92.4	92.0	92.8	93.7	94.5	96.2	97.4	99.5	102.0	104.9	109.5
67.5°	81.6	81.2	81.6	82.8	82.4	83.3	85.3	86.2	88.7	91.6	95.3
70°	70.8	69.9	70.8	70.8	71.2	72.4	72.4	74.5	76.6	78.3	81.6
72.5°	59.1	59.5	59.1	59.5	60.4	60.8	61.6	62.9	64.1	65.8	67.9
75°	49.1	49.1	49.5	50.0	50.8	50.8	51.2	52.0	52.9	53.7	56.2
77.5°	39.1	39.5	40.0	40.4	40.4	40.8	41.2	41.6	42.9	43.3	44.5
80°	30.0	30.4	30.4	30.4	31.2	30.4	31.2	32.1	32.1	32.5	33.3
82.5°	21.6	22.1	21.6	22.1	22.5	22.5	22.1	22.5	22.5	23.3	23.3
85°	14.2	13.3	13.3	13.3	13.3	13.3	13.7	14.2	13.7	13.7	14.2
87.5°	5.8	5.8	5.8	5.8	6.2	5.8	6.2	6.2	6.2	5.8	6.2
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°	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1
2.5°	1139.9	1136.5	1133.6	1128.6	1122.4	1113.2	1112.0	1112.4	1101.1	1090.3	1088.7
5°	1170.7	1165.3	1156.1	1145.3	1135.3	1119.9	1113.2	1108.6	1091.6	1077.0	1071.2
7.5°	1203.6	1190.6	1178.2	1161.1	1144.4	1124.5	1112.0	1102.4	1079.9	1060.8	1050.8
10°	1229.4	1213.5	1195.6	1174.0	1151.1	1126.5	1107.8	1092.8	1065.8	1042.0	1029.5
12.5°	1247.7	1229.8	1208.6	1182.7	1156.5	1124.0	1101.1	1081.2	1048.3	1020.0	1005.0
15°	1257.3	1238.1	1211.9	1183.6	1156.5	1122.4	1092.0	1062.8	1030.4	995.0	976.2
17.5°	1266.0	1241.0	1211.5	1179.0	1151.5	1115.7	1078.2	1040.4	1003.7	970.4	940.0
20°	1259.8	1238.5	1205.6	1171.9	1141.1	1099.5	1059.9	1020.8	975.0	936.3	905.9
22.5°	1230.6	1226.9	1191.5	1155.3	1119.9	1079.9	1034.1	995.4	946.3	900.5	863.8
25°	1196.5	1191.9	1172.7	1134.0	1094.1	1052.4	1011.2	966.7	910.1	862.6	820.5
27.5°	1167.8	1157.3	1143.6	1107.4	1064.5	1022.9	980.4	937.1	876.8	823.9	776.0
30°	1109.5	1119.5	1104.1	1079.1	1029.5	989.2	948.4	901.3	841.4	780.6	731.5
32.5°	1017.0	1077.4	1062.0	1042.0	993.3	949.2	910.5	864.3	798.1	738.1	687.3
35°	935.5	987.5	1022.5	998.3	955.4	904.2	864.7	824.3	755.2	694.0	645.3
37.5°	856.4	911.7	970.0	947.9	912.6	857.6	816.0	776.0	711.9	650.3	601.6
40°	752.7	833.5	889.7	898.4	862.2	806.8	766.4	725.2	668.6	607.4	555.4
42.5°	653.2	756.9	802.2	847.2	810.1	758.1	713.1	678.2	623.6	569.9	513.3
45°	549.1	666.9	734.0	768.5	755.2	707.7	658.6	624.9	579.1	529.1	475.4
47.5°	458.8	570.8	666.5	686.1	699.0	652.4	606.6	572.4	532.9	491.7	440.5
50°	363.9	480.0	582.4	617.8	642.4	599.9	552.0	522.5	489.2	452.1	406.7
52.5°	283.1	391.7	499.2	559.5	567.8	545.8	501.7	472.5	445.9	412.6	371.3
55°	224.8	308.9	416.3	486.7	494.6	489.2	449.6	424.2	404.7	376.8	342.2
57.5°	186.5	240.2	337.2	418.4	430.0	435.0	402.6	379.7	362.2	340.1	308.9
60°	161.1	189.4	263.5	343.0	375.1	383.8	355.1	338.5	323.9	303.9	274.8
62.5°	142.4	155.3	201.5	278.1	319.3	326.8	312.2	299.7	287.7	268.5	242.7
65°	118.6	132.4	155.3	214.8	265.6	269.4	272.3	260.2	250.6	234.8	211.9
67.5°	99.5	110.3	125.3	164.9	213.2	224.0	231.5	226.1	216.9	201.1	181.5
70°	84.5	90.8	101.6	123.6	162.8	186.1	194.0	189.8	185.3	168.2	151.5
72.5°	70.4	75.4	81.6	94.9	122.8	147.8	159.4	157.4	152.4	139.5	125.7
75°	58.3	60.4	65.4	72.9	89.1	112.4	126.1	127.8	122.0	109.9	99.1
77.5°	45.8	47.9	50.8	55.4	65.8	81.6	92.8	97.0	93.3	84.5	73.7
80°	35.0	36.2	38.3	40.4	44.5	55.4	67.0	69.5	67.4	60.4	53.7
82.5°	23.3	24.1	25.8	27.5	29.6	34.6	44.5	46.2	45.8	39.5	35.0
85°	14.2	14.2	14.6	15.8	16.7	18.7	24.1	26.6	25.4	21.2	19.2
87.5°	5.8	6.2	5.8	5.8	5.8	6.2	7.9	10.8	8.3	6.2	5.8
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1	1104.1
2.5°	1084.1	1082.4	1076.2	1070.3	1063.7	1055.8	1056.2	1057.4	1054.5	1053.7	1056.6
5°	1062.8	1057.0	1047.4	1037.9	1030.4	1020.4	1014.5	1017.5	1015.4	1011.6	1009.1
7.5°	1040.4	1032.0	1018.3	1006.2	996.2	977.5	973.3	968.3	964.2	955.8	954.2
10°	1013.7	1001.6	984.2	967.1	948.8	934.2	920.5	914.6	903.4	895.9	893.8
12.5°	986.2	966.3	946.7	921.7	900.9	879.7	867.6	859.3	848.0	829.7	821.0
15°	957.9	927.5	901.3	873.8	859.7	831.0	808.1	782.2	768.5	737.7	719.8
17.5°	920.0	885.1	849.7	827.2	797.7	757.7	719.4	706.1	685.2	665.3	645.3
20°	868.8	836.8	803.1	769.3	724.4	678.2	663.6	640.7	617.8	605.7	595.3
22.5°	821.8	787.2	747.3	702.7	656.5	620.3	601.2	584.5	570.3	559.5	547.4
25°	777.3	741.4	684.4	639.0	598.7	572.0	562.4	540.8	525.8	517.9	507.5
27.5°	728.1	679.0	633.2	586.2	550.4	535.4	513.3	496.2	480.4	465.0	461.3
30°	681.5	627.0	581.6	543.3	517.1	496.2	473.8	453.8	443.4	437.5	428.0
32.5°	635.3	579.9	537.5	507.5	479.2	457.1	435.9	425.5	409.6	396.7	388.4
35°	585.7	537.5	503.7	468.8	441.7	420.1	409.2	385.5	376.8	373.0	364.3
37.5°	542.0	499.2	465.0	438.4	408.8	391.3	370.1	364.7	353.0	343.0	340.1
40°	505.8	465.4	433.4	398.8	380.5	357.6	347.2	332.6	328.5	324.7	318.1
42.5°	466.3	431.7	395.1	371.8	344.7	334.3	318.1	313.9	303.9	300.2	297.7
45°	432.5	400.5	365.5	337.2	321.8	306.4	300.2	289.8	285.2	280.6	276.0
47.5°	399.7	366.4	338.5	311.8	294.7	287.7	276.4	268.9	263.9	259.4	254.8
50°	369.3	335.5	304.3	285.2	273.1	263.1	256.0	249.8	242.7	232.7	222.3
52.5°	336.4	306.0	280.6	261.9	251.0	241.5	235.2	224.4	210.7	199.8	194.8
55°	303.5	274.8	252.7	237.7	230.2	221.1	206.9	191.1	182.3	180.7	179.4
57.5°	275.6	248.5	228.1	216.5	207.7	191.5	176.5	170.7	168.2	167.4	166.5
60°	244.4	220.2	205.7	193.2	178.6	163.2	158.6	157.8	155.3	154.0	153.2
62.5°	215.6	194.8	181.5	166.5	151.1	148.2	144.9	142.8	141.5	138.6	137.4
65°	187.8	171.1	156.5	140.7	135.3	133.2	130.3	127.4	124.1	122.0	120.3
67.5°	161.1	144.9	129.5	123.6	120.7	117.4	113.7	109.5	107.8	104.9	104.5
70°	134.9	119.9	111.6	107.8	102.4	99.5	95.3	93.7	90.8	89.5	88.3
72.5°	109.9	99.1	95.8	90.3	86.6	82.0	79.9	78.3	76.6	74.5	74.5
75°	85.8	82.8	76.6	72.4	68.7	66.2	65.4	62.4	62.0	60.8	59.9
77.5°	68.3	62.4	60.4	55.8	53.3	52.0	51.2	49.5	47.9	47.5	47.0
80°	48.3	45.4	42.9	40.8	38.7	37.9	37.1	36.6	35.8	35.0	34.6
82.5°	31.6	30.0	28.3	27.1	26.6	25.4	24.6	24.1	23.3	23.3	23.3
85°	17.1	16.7	15.8	15.0	14.2	14.2	13.7	13.3	13.3	12.1	12.1
87.5°	5.4	5.4	5.0	5.0	4.2	4.6	4.2	4.2	3.7	4.2	4.2
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: P243107

CATALOG NUMBER: S121RDR-H685D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1104.1	1104.1	1104.1	1104.1
2.5°	1053.3	1053.3	1051.6	1053.3
5°	1007.5	1003.7	1002.5	1001.6
7.5°	949.2	945.9	942.5	939.2
10°	889.7	884.7	881.7	879.2
12.5°	812.2	806.0	794.3	797.7
15°	716.9	717.3	690.2	720.2
17.5°	639.0	641.1	630.3	628.6
20°	589.5	588.7	584.5	579.5
22.5°	538.7	535.0	533.3	525.4
25°	491.2	484.6	486.7	475.4
27.5°	456.7	451.3	449.6	448.8
30°	422.1	410.9	407.2	409.6
32.5°	387.2	386.3	385.1	385.5
35°	357.6	355.9	352.2	352.2
37.5°	337.2	337.6	335.5	333.9
40°	312.2	310.2	309.7	307.2
42.5°	294.3	290.2	288.5	288.9
45°	273.5	271.0	268.9	269.8
47.5°	249.0	246.5	241.9	240.6
50°	215.6	212.3	210.2	208.2
52.5°	190.7	190.3	189.4	189.0
55°	178.6	177.3	177.3	177.3
57.5°	166.1	165.3	164.9	165.7
60°	152.4	151.5	149.9	149.9
62.5°	135.3	134.5	134.1	132.4
65°	118.2	117.8	117.0	117.4
67.5°	102.4	102.0	102.0	100.7
70°	87.0	87.0	85.8	86.6
72.5°	72.9	72.4	72.4	72.4
75°	59.1	58.7	58.3	58.3
77.5°	46.6	46.6	45.8	45.8
80°	33.7	33.7	33.3	34.1
82.5°	22.5	23.3	22.5	22.5
85°	12.1	12.5	12.5	12.5
87.5°	3.7	3.3	3.3	3.3
90°	0.0	0.0	0.0	0.0

(END OF REPORT)