

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: P242217

Luminaire Tested: **S121RDR-S685D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242217  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-28)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S121RDR-S685D927-X4F0-XX-UDD-A-W  
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 2700K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1909.0 lumens  
Efficiency: N/A  
Efficacy: 72.3 lumens/watt  
Spacing Criteria (0/90/45): 0.96 / 1.23 / 1.1  
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')  
CIE Type: Direct

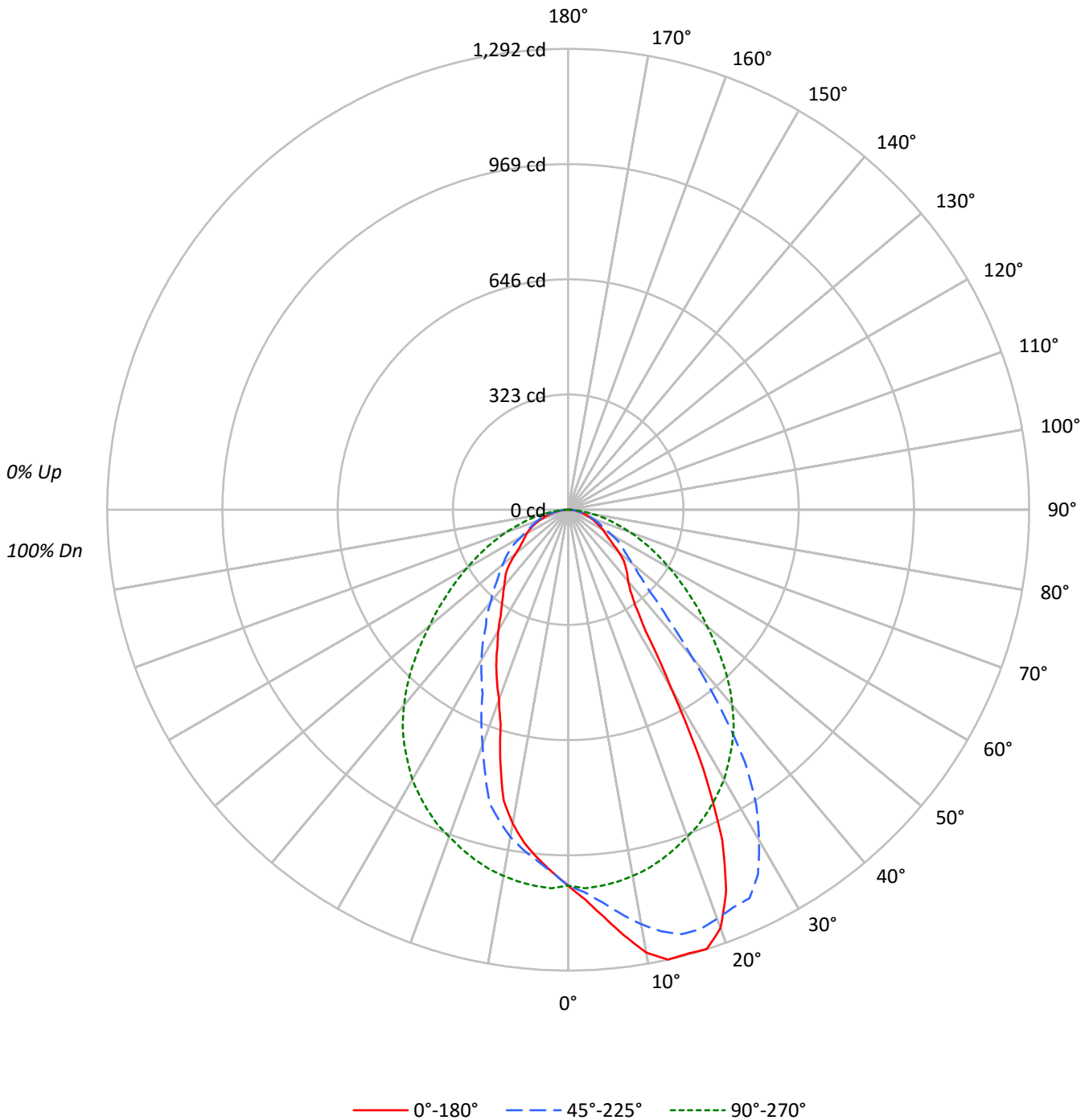
Input Watts (W): 26.4  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	82	87	83	80	84	81	78	76
3	94	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	68	67
4	88	77	69	64	85	76	69	63	73	67	62	71	66	61	69	65	61	59
5	81	70	62	56	79	69	62	56	67	60	55	65	59	55	63	58	54	52
6	76	64	56	50	74	63	56	50	61	55	50	60	54	49	58	53	49	47
7	71	59	51	45	69	58	51	45	57	50	45	55	49	45	54	48	44	43
8	67	54	47	41	65	54	46	41	52	46	41	51	45	41	50	45	40	39
9	63	50	43	38	61	50	43	38	49	42	37	48	42	37	47	41	37	35
10	59	47	40	35	58	46	39	35	45	39	35	44	39	34	44	38	34	33

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

	0°	90°	180°
0°	31221	31221	31221
5°	34073	31492	29172
10°	37921	31368	26886
15°	39540	31129	22503
20°	39367	30762	17859
25°	33386	30421	15591
30°	19652	29896	13391
35°	11806	28984	11691
40°	10111	27671	10788
45°	9562	25795	10258
50°	8546	23426	8873
55°	7118	21381	8022
60°	6619	19484	7982
65°	6107	17745	7719
70°	5761	15992	7277
75°	5438	14150	6617
80°	4863	11825	5819
85°	4589	9281	4589



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	101.0	5.3
10°-20°	287.8	15.1
20°-30°	393.1	20.6
30°-40°	366.2	19.2
40°-50°	302.7	15.9
50°-60°	223.2	11.7
60°-70°	142.7	7.5
70°-80°	73.4	3.8
80°-90°	18.9	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°	781.8	41.0
0°-40°	1148.0	60.1
0°-60°	1674.0	87.7
0°-90°	1909.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1909.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1054	1054	1054	1054	1054	
5°	1146	1105	1059	988	981	113
15°	1289	1232	1015	851	734	363
25°	1021	1202	930	568	477	443
35°	326	864	801	403	323	222
45°	228	322	616	282	245	175
55°	138	185	414	202	155	127
65°	87	101	253	117	110	87
75°	48	52	124	65	58	50
85°	14	14	27	15	14	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°	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7
2.5°	1094.1	1093.3	1094.5	1093.7	1092.9	1090.9	1089.3	1084.6	1077.4	1073.5	1077.4
5°	1145.6	1148.7	1147.5	1146.0	1142.4	1139.2	1132.1	1127.7	1115.1	1105.2	1107.9
7.5°	1204.2	1208.1	1203.0	1199.4	1197.5	1188.3	1180.4	1168.1	1154.3	1143.2	1136.8
10°	1260.4	1261.6	1260.0	1256.9	1250.1	1240.2	1228.7	1214.9	1197.5	1180.4	1168.9
12.5°	1292.1	1294.1	1296.5	1290.9	1285.8	1277.9	1266.0	1252.1	1230.7	1210.9	1197.8
15°	1289.0	1290.5	1294.9	1292.9	1290.5	1287.0	1280.2	1268.8	1253.7	1231.9	1213.3
17.5°	1291.3	1292.5	1294.5	1287.4	1283.4	1279.1	1270.3	1262.4	1249.7	1232.7	1218.8
20°	1248.5	1268.0	1265.6	1275.1	1279.1	1278.7	1270.3	1255.3	1237.9	1220.4	1214.1
22.5°	1156.7	1172.1	1174.1	1188.7	1207.0	1221.6	1239.8	1246.6	1233.1	1207.0	1198.2
25°	1021.2	1032.3	1043.4	1064.4	1083.8	1124.6	1161.8	1189.9	1205.4	1201.8	1184.8
27.5°	820.7	808.9	852.8	877.0	931.3	990.7	1043.0	1094.5	1119.0	1151.9	1168.5
30°	574.4	573.2	606.4	648.4	729.6	784.3	882.1	964.9	1029.5	1069.9	1115.1
32.5°	403.2	409.2	433.7	459.5	504.3	593.4	668.2	782.3	892.4	980.8	1036.2
35°	326.4	327.2	332.7	348.2	375.5	425.0	483.3	594.2	743.5	863.5	946.3
37.5°	286.0	288.4	290.0	298.7	308.6	329.6	366.4	443.3	566.8	700.7	844.5
40°	261.4	263.4	265.0	267.8	273.7	283.6	307.8	344.6	415.9	539.1	699.1
42.5°	244.8	244.0	247.6	248.8	251.9	257.5	268.2	288.0	329.2	412.8	550.6
45°	228.2	229.3	229.3	230.9	233.7	236.9	241.2	253.5	274.5	322.0	430.2
47.5°	210.7	210.3	212.7	213.9	216.7	219.4	222.6	229.0	241.2	269.0	331.5
50°	185.4	186.2	190.5	194.5	198.5	202.0	206.0	209.9	217.9	232.9	271.3
52.5°	158.4	158.4	163.2	166.0	171.5	180.2	187.0	192.9	198.1	205.6	228.6
55°	137.8	138.2	139.8	142.2	146.2	150.5	159.2	169.5	178.3	184.6	197.3
57.5°	123.6	124.0	124.4	126.4	128.3	129.9	135.1	143.0	154.5	166.0	173.5
60°	111.7	111.3	111.3	112.5	114.1	116.1	118.8	122.0	128.3	140.6	154.1
62.5°	98.2	99.0	99.0	100.2	101.4	103.4	104.6	107.7	111.3	116.9	130.7
65°	87.1	87.9	87.1	88.3	89.1	90.3	92.3	93.9	97.0	100.6	106.2
67.5°	76.1	76.4	77.2	77.6	78.4	78.8	80.4	82.4	84.4	86.7	91.1
70°	66.5	66.5	66.5	67.3	68.1	68.1	69.3	70.1	72.1	74.5	76.8
72.5°	56.2	56.6	56.6	56.2	57.8	58.2	58.6	59.4	61.0	63.0	65.0
75°	47.5	46.7	46.7	47.1	48.3	48.3	48.7	49.1	50.3	51.9	53.1
77.5°	37.2	37.2	37.6	38.0	38.4	38.4	39.2	39.2	40.8	41.6	42.4
80°	28.5	29.3	29.7	29.3	29.3	29.7	29.7	30.5	30.9	31.3	32.1
82.5°	21.4	21.8	21.0	21.0	21.4	21.4	21.8	21.8	22.2	22.6	22.6
85°	13.5	13.5	13.9	13.5	13.9	13.5	13.5	14.3	13.9	13.9	14.3
87.5°	6.3	6.7	6.3	6.7	6.3	6.7	6.7	6.7	6.7	6.7	6.3
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°	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7
2.5°	1076.2	1075.8	1073.9	1069.5	1066.3	1060.4	1060.4	1062.4	1052.1	1044.9	1044.6
5°	1101.2	1097.2	1090.5	1082.2	1074.7	1064.4	1060.4	1058.8	1044.9	1034.3	1030.7
7.5°	1127.7	1117.8	1106.3	1092.9	1080.2	1065.5	1058.0	1052.1	1034.3	1021.2	1013.3
10°	1155.5	1139.6	1121.8	1102.4	1085.0	1065.1	1052.9	1042.6	1022.0	1003.8	994.6
12.5°	1180.0	1157.8	1135.3	1109.9	1086.1	1061.2	1044.2	1030.7	1006.5	984.7	973.6
15°	1191.5	1167.7	1149.1	1114.3	1082.2	1056.8	1035.0	1014.8	989.1	964.9	947.9
17.5°	1201.4	1175.3	1150.7	1117.8	1080.6	1047.7	1021.6	995.8	968.1	942.7	921.8
20°	1198.6	1176.5	1146.4	1111.5	1076.2	1038.2	1008.5	975.6	941.2	915.4	893.2
22.5°	1182.8	1164.6	1133.3	1100.0	1065.9	1025.1	991.5	955.8	913.4	885.3	860.4
25°	1162.6	1145.2	1114.3	1079.8	1046.1	1006.5	966.9	930.5	884.9	851.2	819.2
27.5°	1146.7	1120.6	1089.7	1051.3	1018.8	981.2	939.6	902.7	853.6	816.4	779.2
30°	1128.5	1098.8	1060.8	1020.0	985.5	951.1	910.7	873.8	819.6	777.2	730.8
32.5°	1076.2	1076.6	1031.5	985.9	949.1	912.2	876.2	837.0	783.1	733.2	685.7
35°	1008.1	1034.6	1001.4	949.1	903.5	869.5	839.8	801.3	741.5	690.0	636.2
37.5°	917.0	963.7	967.7	913.4	863.1	823.1	793.8	761.7	701.5	646.1	592.6
40°	825.9	887.7	912.2	874.6	820.0	774.0	744.7	715.4	658.7	598.9	549.4
42.5°	714.2	814.4	844.9	833.8	775.2	725.7	694.8	668.2	613.2	554.6	505.4
45°	588.2	723.7	768.1	779.6	730.0	677.0	641.3	615.6	567.2	515.7	464.6
47.5°	472.6	621.5	694.8	706.7	680.5	629.0	588.2	561.3	522.9	478.5	427.8
50°	360.5	513.0	617.9	636.2	629.8	577.5	539.9	508.2	478.9	439.3	391.8
52.5°	286.8	410.0	534.8	568.8	570.8	529.6	490.0	461.1	432.6	401.3	358.1
55°	229.0	316.9	443.3	501.1	506.6	478.1	441.7	413.9	392.5	363.2	326.8
57.5°	192.9	245.2	354.9	433.0	435.3	427.4	392.5	369.6	351.7	326.4	294.3
60°	164.8	194.5	273.7	364.8	376.7	376.7	349.0	328.8	311.7	292.7	262.2
62.5°	142.6	158.8	207.6	290.0	320.5	325.2	307.8	290.0	277.3	258.3	230.1
65°	120.0	132.3	160.8	224.2	266.2	274.9	266.2	253.1	243.2	223.4	201.2
67.5°	98.6	110.5	128.3	169.9	215.9	226.6	225.0	218.3	208.0	193.3	169.9
70°	81.6	88.7	101.8	126.0	169.5	185.8	190.5	184.6	175.5	159.6	142.6
72.5°	67.3	72.9	79.2	96.7	126.8	148.1	156.1	152.9	146.2	131.1	116.9
75°	55.1	58.6	63.0	71.3	91.1	115.3	124.4	123.6	116.9	104.2	92.7
77.5°	44.4	45.6	48.7	53.9	63.8	85.6	92.7	95.1	89.9	79.2	70.1
80°	33.3	34.9	36.4	39.2	44.0	56.6	65.8	69.3	65.0	58.6	49.5
82.5°	23.4	23.8	25.4	26.9	29.3	34.5	44.0	47.9	44.0	37.2	34.5
85°	14.7	14.3	14.7	15.1	17.4	18.6	24.6	27.3	26.5	22.6	19.4
87.5°	6.7	6.7	6.3	6.7	6.3	7.5	8.7	12.7	9.5	8.3	7.5
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°	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7	1053.7
2.5°	1041.4	1040.2	1036.2	1030.7	1025.9	1018.0	1018.0	1020.0	1019.6	1020.4	1019.6
5°	1024.7	1019.2	1013.3	1005.7	998.6	988.3	987.1	987.9	987.5	987.1	984.7
7.5°	1003.4	997.0	989.5	980.0	972.1	962.2	959.4	958.6	955.4	954.2	951.1
10°	982.8	975.2	965.3	953.8	943.1	931.7	924.5	920.6	915.4	909.9	905.1
12.5°	959.8	949.9	937.2	923.3	905.5	892.8	882.1	875.4	868.3	858.8	852.0
15°	935.2	915.0	900.0	877.4	855.6	851.2	835.0	813.6	812.0	765.7	749.4
17.5°	902.3	885.7	857.6	828.3	798.6	774.4	774.8	717.0	699.1	698.7	670.2
20°	868.3	845.3	812.8	783.1	751.8	701.9	662.3	643.3	614.4	603.3	587.0
22.5°	828.3	798.2	760.1	719.7	676.2	635.8	596.9	578.7	564.1	551.8	545.1
25°	780.7	750.2	704.7	654.4	605.7	568.0	546.6	538.3	513.4	504.6	496.3
27.5°	732.8	699.5	640.1	591.8	551.8	526.0	503.9	490.0	478.1	455.9	446.0
30°	687.3	633.8	584.7	540.3	510.2	486.0	469.8	441.7	425.0	414.7	410.4
32.5°	637.7	580.7	536.3	497.9	467.0	446.0	421.9	402.8	395.3	381.9	362.4
35°	587.0	535.1	488.8	457.9	431.4	402.8	387.8	369.6	350.6	340.3	338.7
37.5°	537.9	488.8	455.5	423.0	391.0	374.3	352.1	332.7	326.0	316.5	306.2
40°	493.6	451.6	420.7	383.4	364.0	338.3	321.2	311.3	295.1	291.5	288.4
42.5°	457.1	421.1	386.2	352.9	330.4	309.8	294.7	283.2	278.1	269.4	266.6
45°	420.3	387.0	351.4	325.2	299.5	282.0	271.7	261.8	255.9	253.5	248.8
47.5°	387.0	354.5	321.6	289.6	272.1	260.6	249.2	244.0	240.4	235.3	232.5
50°	355.3	319.3	288.4	268.2	249.6	239.3	231.7	227.0	221.4	215.9	208.0
52.5°	323.2	292.3	262.6	241.2	227.4	220.6	213.5	208.4	197.3	186.6	179.8
55°	290.7	259.1	234.9	218.7	208.8	201.6	193.3	178.3	168.0	162.0	158.8
57.5°	261.4	232.9	211.5	198.1	190.9	179.0	164.4	154.9	149.7	147.4	145.8
60°	230.1	205.6	187.8	177.5	166.4	150.5	142.6	137.8	136.3	135.5	134.3
62.5°	203.2	181.4	167.6	156.1	140.2	131.9	127.5	125.2	125.2	124.0	123.2
65°	174.7	157.7	145.8	129.1	120.8	117.2	115.7	114.5	113.3	112.9	111.3
67.5°	151.3	136.3	120.8	112.1	107.0	105.0	103.4	103.0	101.4	100.2	99.0
70°	127.5	112.9	100.2	96.3	93.5	92.7	91.1	89.5	88.3	86.7	86.0
72.5°	103.8	89.9	85.6	83.6	80.8	79.6	77.6	76.4	74.5	73.7	72.9
75°	79.2	73.7	71.3	69.7	67.7	65.0	64.2	63.0	62.2	61.0	59.8
77.5°	63.0	59.8	57.0	55.1	53.5	51.5	49.9	49.5	48.7	47.5	47.1
80°	47.1	44.8	43.6	41.6	39.6	38.4	37.6	37.2	36.0	35.7	35.3
82.5°	32.5	30.5	29.7	27.3	26.5	26.5	26.1	25.4	24.6	24.2	23.8
85°	18.2	17.4	16.2	16.6	15.4	15.4	15.1	14.7	14.3	13.9	13.5
87.5°	7.1	6.7	6.3	5.9	5.9	4.8	4.8	4.8	5.1	4.8	4.4
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: P242217

CATALOG NUMBER: S121RDR-S685D927-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1053.7	1053.7	1053.7	1053.7
2.5°	1020.8	1021.6	1018.8	1017.2
5°	984.7	983.5	982.0	980.8
7.5°	947.9	946.7	946.7	942.0
10°	903.1	900.0	897.6	893.6
12.5°	846.1	841.3	839.8	835.0
15°	738.4	728.5	721.7	733.6
17.5°	663.5	637.7	639.7	629.8
20°	586.6	576.3	581.5	566.4
22.5°	536.7	530.4	524.5	521.3
25°	490.4	482.9	473.8	476.9
27.5°	432.2	432.2	426.2	428.6
30°	402.5	399.3	389.4	391.4
32.5°	356.1	352.1	351.0	351.7
35°	333.9	327.6	325.6	323.2
37.5°	303.0	300.7	301.0	299.5
40°	282.4	280.4	278.1	278.9
42.5°	264.6	263.4	261.0	261.4
45°	247.2	246.0	244.8	244.8
47.5°	227.8	225.4	223.4	221.0
50°	202.4	197.7	194.1	192.5
52.5°	175.1	172.7	170.3	170.3
55°	157.7	156.5	155.7	155.3
57.5°	145.4	144.6	144.6	143.4
60°	134.3	134.3	133.9	134.7
62.5°	123.6	122.4	122.8	122.8
65°	111.3	110.9	110.5	110.1
67.5°	98.2	97.8	98.2	97.4
70°	85.2	85.2	84.8	84.0
72.5°	71.7	72.5	71.7	71.3
75°	59.0	58.6	59.0	57.8
77.5°	47.1	45.6	46.3	46.7
80°	34.9	34.9	34.5	34.1
82.5°	23.4	23.8	23.0	23.0
85°	13.5	13.5	12.7	13.5
87.5°	4.0	4.0	4.0	4.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)