

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: P242134

Luminaire Tested: **S121DR-S685D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242134  
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-S685D930-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: 2334.6 lumens  
Efficiency: N/A  
Efficacy: 88.8 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

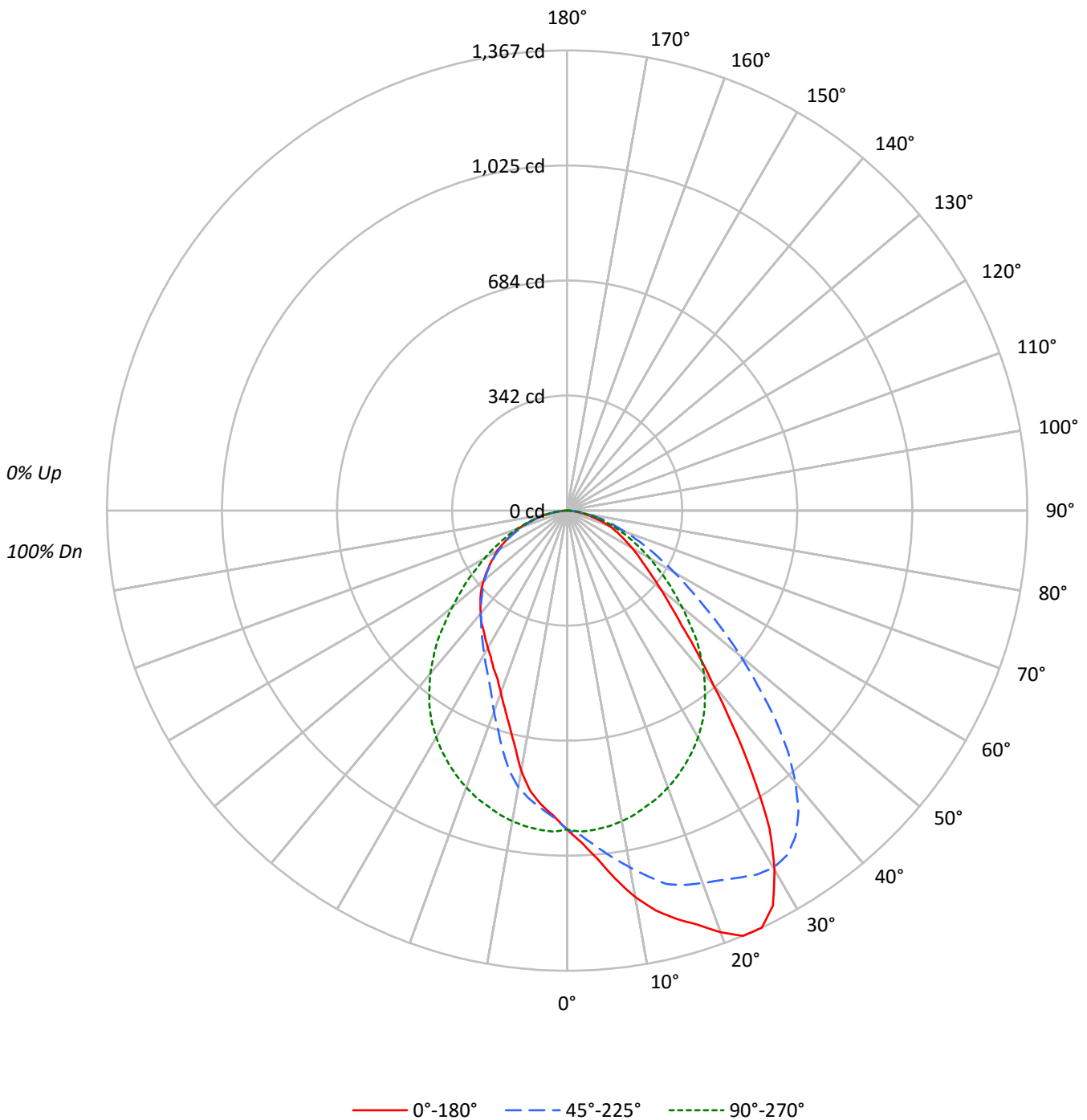
Input Watts (W): 26.3  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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°	28071	28071	28071
5°	30894	28300	26093
10°	35078	28197	23597
15°	38515	27887	20282
20°	42034	27612	18149
25°	44701	27174	16899
30°	42151	26611	16125
35°	34829	25776	15659
40°	26112	24441	15452
45°	20122	22787	15269
50°	16687	20503	14921
55°	14402	18617	14490
60°	13239	16788	14299
65°	12234	15179	13489
70°	11583	13636	12925
75°	9525	12043	11482
80°	7508	9811	9453
85°	5813	7207	6391



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	91.1	3.9
10°-20°	265.7	11.4
20°-30°	406.9	17.4
30°-40°	464.3	19.9
40°-50°	416.6	17.8
50°-60°	326.8	14.0
60°-70°	222.3	9.5
70°-80°	114.5	4.9
80°-90°	26.4	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°	763.7	32.7
0°-40°	1228.0	52.6
0°-60°	1971.4	84.4
0°-90°	2334.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2334.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	947	947	947	947	947	
5°	1039	1002	952	888	877	103
15°	1256	1149	909	738	661	357
25°	1367	1203	831	552	517	617
35°	963	1182	713	442	433	597
45°	480	872	544	358	364	381
55°	279	498	360	277	280	254
65°	174	265	216	189	192	174
75°	83	117	105	97	100	90
85°	17	23	21	20	19	21
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°	947.4	947.4	947.4	947.4	947.4	947.4	947.4	947.4	947.4	947.4	947.4
2.5°	987.4	987.4	989.0	988.6	987.0	984.1	981.7	978.8	971.5	966.6	971.1
5°	1038.7	1040.8	1042.8	1042.4	1036.3	1031.0	1023.2	1021.2	1008.1	1002.0	1000.0
7.5°	1103.9	1103.5	1104.4	1097.4	1092.1	1086.8	1076.6	1064.0	1048.5	1039.9	1031.8
10°	1165.9	1169.6	1168.0	1159.4	1151.2	1145.5	1129.2	1113.7	1094.6	1076.2	1066.0
12.5°	1216.5	1214.4	1221.4	1213.2	1203.4	1192.8	1176.9	1163.1	1138.2	1113.3	1092.5
15°	1255.6	1253.6	1254.4	1248.3	1238.1	1228.7	1212.4	1197.7	1174.1	1149.2	1127.2
17.5°	1289.8	1291.9	1288.2	1280.9	1267.0	1256.0	1235.6	1215.6	1190.8	1165.9	1144.3
20°	1333.1	1335.1	1328.2	1317.6	1304.1	1285.4	1264.2	1235.6	1207.9	1177.3	1150.4
22.5°	1367.3	1366.1	1363.6	1353.4	1339.2	1321.6	1291.1	1259.7	1226.7	1188.7	1154.1
25°	1367.3	1368.9	1370.2	1364.9	1355.5	1340.8	1320.0	1287.0	1249.9	1203.4	1154.9
27.5°	1323.3	1330.6	1335.9	1335.9	1333.9	1333.5	1321.2	1300.4	1265.8	1218.9	1165.1
30°	1232.0	1241.7	1249.9	1262.5	1277.6	1287.4	1291.1	1282.9	1265.0	1225.4	1169.6
32.5°	1119.4	1118.6	1135.3	1155.7	1185.5	1206.3	1227.1	1239.3	1238.5	1214.8	1168.4
35°	962.9	974.3	994.3	1022.8	1061.1	1095.4	1140.6	1164.3	1183.0	1182.2	1152.5
37.5°	810.4	812.1	834.5	873.6	907.5	960.5	1019.6	1068.9	1114.1	1128.8	1119.0
40°	675.1	686.5	701.6	734.2	768.0	814.5	889.5	955.6	1011.4	1054.6	1066.4
42.5°	570.7	576.8	591.5	620.1	650.2	705.7	760.7	831.2	901.7	970.6	1006.1
45°	480.2	485.9	499.4	519.4	547.5	591.1	647.8	716.3	791.7	872.4	922.9
47.5°	414.2	416.2	426.4	441.5	468.0	499.8	545.5	611.9	688.1	766.8	841.0
50°	362.0	365.3	372.2	384.0	403.6	433.3	469.6	519.8	590.3	671.8	747.2
52.5°	316.3	318.8	326.9	333.5	348.6	373.8	405.2	450.9	510.4	583.8	661.6
55°	278.8	281.3	285.4	292.7	304.5	321.6	348.6	384.8	435.8	497.8	570.7
57.5°	250.3	251.5	252.3	257.2	266.6	280.5	303.3	331.8	371.4	428.0	492.9
60°	223.4	223.0	226.3	229.9	235.6	244.2	260.9	286.6	322.1	368.1	428.5
62.5°	196.5	198.5	200.6	203.4	207.1	212.0	225.4	244.6	272.7	312.3	362.0
65°	174.5	174.9	176.5	176.9	181.4	186.3	196.5	209.5	232.8	265.0	306.2
67.5°	153.3	153.7	153.3	154.5	156.5	160.6	165.9	176.5	194.5	220.5	256.4
70°	133.7	132.5	130.9	132.9	134.9	137.0	140.6	148.8	162.2	181.8	211.6
72.5°	107.6	108.4	109.3	110.1	110.5	113.3	116.6	122.3	132.9	148.0	170.8
75°	83.2	83.2	84.4	85.2	88.9	89.7	93.4	97.4	106.0	116.6	134.5
77.5°	61.1	60.7	62.8	63.2	65.2	67.7	69.7	73.8	80.3	89.3	101.1
80°	44.0	44.4	44.0	44.0	45.3	46.9	49.7	51.8	56.3	62.0	70.5
82.5°	29.4	29.4	29.8	29.8	31.0	31.0	32.6	34.2	37.1	40.8	46.9
85°	17.1	17.1	16.7	16.7	17.1	17.1	18.8	20.0	20.4	22.8	24.9
87.5°	7.3	7.3	6.9	7.3	6.9	7.3	6.9	7.7	8.2	8.6	9.4
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°	947.4	947.4	947.4	947.4	947.4	947.4	947.4	947.4	947.4	947.4	947.4
2.5°	969.8	968.6	968.2	963.7	959.2	953.9	953.1	954.7	947.8	939.3	938.8
5°	995.1	990.6	984.1	975.5	968.2	958.4	953.5	951.5	940.9	928.7	926.2
7.5°	1023.2	1012.2	1000.4	987.4	974.3	960.0	951.1	945.8	931.1	916.0	909.9
10°	1050.1	1035.9	1017.9	998.0	979.6	960.0	946.6	937.2	919.3	900.5	891.1
12.5°	1081.1	1057.5	1032.2	1007.3	984.9	959.6	939.3	925.0	904.2	884.2	870.4
15°	1103.5	1069.3	1049.7	1014.3	986.1	955.6	930.7	909.1	886.3	864.2	850.4
17.5°	1121.1	1094.2	1059.9	1020.8	982.9	949.9	918.9	894.8	864.7	840.6	825.5
20°	1126.8	1099.5	1064.4	1021.6	983.7	941.3	904.6	875.7	843.5	814.1	793.3
22.5°	1124.7	1093.8	1057.9	1015.9	977.6	927.4	889.1	854.5	818.6	787.2	758.7
25°	1120.3	1084.4	1044.8	1005.3	962.5	913.2	869.1	831.2	788.0	753.8	719.5
27.5°	1117.8	1070.9	1026.5	983.7	942.9	895.2	847.9	805.5	757.8	716.3	672.2
30°	1117.0	1061.1	1005.3	955.6	918.1	869.5	822.7	777.8	722.0	675.1	630.2
32.5°	1115.4	1053.0	987.4	927.8	885.0	841.4	791.7	747.2	684.1	635.1	587.0
35°	1104.4	1038.7	966.6	898.9	848.8	803.5	759.1	712.6	647.0	594.4	548.3
37.5°	1080.7	1023.2	946.2	870.0	810.0	764.0	722.8	672.2	608.6	551.2	508.4
40°	1045.7	998.8	924.2	841.4	770.9	720.3	676.7	631.9	566.2	511.2	472.5
42.5°	1000.0	963.7	893.6	808.0	733.0	676.3	631.9	587.4	527.1	474.1	439.5
45°	940.1	917.6	856.1	771.7	696.3	630.7	582.5	543.8	488.0	439.5	407.7
47.5°	873.6	863.8	812.5	731.3	651.9	588.3	532.0	491.2	447.6	406.4	378.3
50°	793.3	801.1	760.7	686.1	609.0	543.8	488.8	444.8	406.8	375.0	350.2
52.5°	718.3	736.6	704.0	633.1	564.2	496.5	441.1	400.7	371.0	344.9	323.3
55°	634.7	661.2	641.7	580.5	512.0	452.1	396.7	360.4	334.7	314.7	296.4
57.5°	554.4	591.9	577.7	522.6	464.3	406.0	353.9	318.0	299.6	285.0	269.5
60°	483.1	517.3	515.3	468.4	410.1	358.3	315.5	283.3	267.0	257.2	243.8
62.5°	419.1	453.7	450.5	408.1	362.0	313.9	277.6	248.3	236.4	225.8	217.3
65°	353.9	383.6	385.2	353.9	309.4	270.7	239.7	216.5	205.9	199.3	193.2
67.5°	294.7	323.7	326.5	301.7	262.5	229.1	205.9	186.3	176.9	171.2	166.7
70°	243.0	266.6	271.9	251.1	218.1	192.0	172.4	157.4	151.2	145.5	143.9
72.5°	196.9	216.1	219.7	200.6	176.1	156.5	141.5	130.0	125.6	119.9	118.6
75°	156.5	170.0	170.4	157.8	139.4	124.3	112.1	105.2	100.3	96.2	95.4
77.5°	113.7	125.6	129.2	119.9	104.8	92.1	85.2	79.9	76.6	74.6	74.2
80°	82.3	90.1	91.7	83.6	74.6	66.9	62.0	57.5	55.4	53.4	52.6
82.5°	51.4	58.3	58.7	53.0	48.5	43.2	39.1	37.5	36.3	35.1	35.1
85°	27.7	31.4	31.0	28.5	26.5	23.6	22.0	21.2	20.4	19.6	19.6
87.5°	10.6	11.8	11.8	12.2	10.6	9.4	8.6	9.0	8.6	8.6	8.6
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°	947.4	947.4	947.4	947.4	947.4	947.4	947.4	947.4	947.4	947.4	947.4
2.5°	936.0	934.4	930.3	923.8	920.1	911.9	912.3	914.0	914.4	913.2	912.8
5°	919.3	914.4	907.9	899.7	894.0	887.9	883.8	886.3	885.0	884.6	882.6
7.5°	900.9	894.4	886.3	878.1	871.6	863.4	860.2	857.3	854.1	853.6	852.0
10°	882.6	874.4	865.1	853.2	844.3	834.1	824.3	819.0	812.9	808.4	799.0
12.5°	861.0	847.1	836.5	824.3	808.0	791.7	780.7	765.6	757.4	749.3	738.3
15°	836.1	818.2	799.8	775.4	761.1	738.3	722.0	711.0	698.3	690.2	680.8
17.5°	800.6	781.9	758.7	730.9	705.7	682.4	670.6	656.3	651.0	633.1	631.5
20°	765.6	737.5	708.5	680.4	652.3	635.5	620.5	611.1	601.3	589.9	586.2
22.5°	726.0	689.4	658.8	632.7	607.0	588.7	581.3	570.7	561.4	554.8	548.7
25°	677.9	644.1	613.1	588.7	565.4	551.6	542.2	534.4	530.4	523.0	520.6
27.5°	633.5	599.7	574.8	552.0	533.2	521.0	512.8	505.9	500.6	499.4	496.5
30°	588.3	559.3	535.7	516.1	499.4	492.9	485.1	481.9	478.6	477.0	473.7
32.5°	547.5	521.8	501.0	482.3	472.5	466.4	462.3	459.0	456.6	455.8	455.0
35°	510.4	486.7	469.6	456.2	448.8	442.3	440.3	437.4	436.2	435.8	435.4
37.5°	477.8	455.8	442.7	430.9	425.6	419.5	419.9	418.7	417.9	415.4	417.0
40°	444.8	427.6	414.2	404.8	401.1	399.1	398.3	397.5	397.9	397.9	397.5
42.5°	414.6	399.5	390.9	382.0	380.3	378.7	378.7	377.5	377.9	379.9	380.8
45°	387.3	375.5	367.7	360.4	360.4	358.3	360.0	359.6	360.8	362.0	362.8
47.5°	360.0	349.4	343.7	340.0	338.4	338.4	339.6	341.6	342.4	342.8	343.7
50°	332.7	324.9	320.0	318.0	317.6	319.6	320.8	320.4	321.6	323.3	324.5
52.5°	308.6	301.7	298.4	297.6	297.6	299.2	299.6	300.9	301.7	301.7	303.3
55°	283.7	278.8	276.4	276.0	276.4	277.2	278.8	279.7	279.2	280.1	280.1
57.5°	258.9	255.2	254.0	255.2	255.2	256.8	256.8	256.8	256.4	258.1	257.6
60°	235.6	231.6	232.8	232.4	233.6	233.6	234.8	234.8	233.6	235.2	236.0
62.5°	212.4	211.6	209.9	209.9	211.2	211.6	210.4	211.6	212.0	213.2	214.0
65°	187.9	185.1	186.3	185.9	187.1	189.2	187.5	187.5	188.7	190.4	191.2
67.5°	164.7	162.2	163.5	163.9	163.9	164.7	163.5	164.3	165.9	168.0	169.2
70°	141.1	140.2	140.6	140.2	140.2	142.3	142.7	142.3	143.9	145.9	146.4
72.5°	117.0	117.8	117.0	117.8	118.6	117.4	117.8	119.0	120.7	121.9	123.9
75°	95.0	93.8	94.2	96.2	95.8	96.6	96.2	97.4	100.3	99.5	99.9
77.5°	73.4	73.0	73.4	73.8	74.2	75.4	75.0	77.0	77.5	77.9	78.7
80°	52.2	52.6	53.0	53.8	55.0	54.6	55.4	55.8	57.5	55.8	57.1
82.5°	35.5	35.1	35.9	35.9	37.1	37.9	36.7	36.7	36.7	36.3	36.3
85°	19.6	20.8	20.8	20.8	20.0	20.0	20.4	20.0	20.0	20.0	19.6
87.5°	8.6	8.6	8.2	7.7	8.2	7.7	7.7	7.3	6.9	6.9	6.5
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: P242134

CATALOG NUMBER: S121DR-S685D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	947.4	947.4	947.4	947.4
2.5°	910.3	912.3	909.9	908.3
5°	880.6	880.6	878.1	877.3
7.5°	847.1	847.5	843.0	839.8
10°	797.0	794.5	788.0	784.3
12.5°	730.1	733.8	724.0	716.7
15°	671.8	661.6	665.7	661.2
17.5°	622.9	619.6	615.2	615.6
20°	580.1	577.7	575.2	575.6
22.5°	546.3	544.2	543.4	540.6
25°	518.1	519.0	516.9	516.9
27.5°	494.9	493.7	492.5	490.8
30°	472.9	473.3	472.1	471.3
32.5°	453.3	453.7	452.9	451.7
35°	434.2	433.8	434.2	432.9
37.5°	416.6	416.2	416.6	418.3
40°	398.7	399.1	397.9	399.5
42.5°	381.2	381.6	381.6	380.8
45°	362.0	363.2	363.6	364.4
47.5°	343.3	345.3	344.5	344.9
50°	324.5	324.1	324.1	323.7
52.5°	303.7	302.5	302.1	302.5
55°	278.8	280.5	280.5	280.5
57.5°	258.5	258.9	260.1	258.5
60°	237.7	237.7	238.1	241.3
62.5°	214.4	214.8	215.7	216.1
65°	192.0	193.2	192.8	192.4
67.5°	170.0	170.0	170.4	169.6
70°	147.2	147.2	147.2	149.2
72.5°	123.5	123.5	123.9	124.7
75°	101.5	101.5	101.5	100.3
77.5°	77.5	77.9	77.9	78.3
80°	56.3	55.8	55.8	55.4
82.5°	35.5	35.9	35.5	35.1
85°	19.6	20.0	18.8	18.8
87.5°	6.9	6.9	6.5	7.3
90°	0.0	0.0	0.0	0.0

(END OF REPORT)