

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: P242237

Luminaire Tested: **S121RDR-S685D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242237
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-S685D930-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED 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: 1964.7 lumens
Efficiency: N/A
Efficacy: 74.4 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

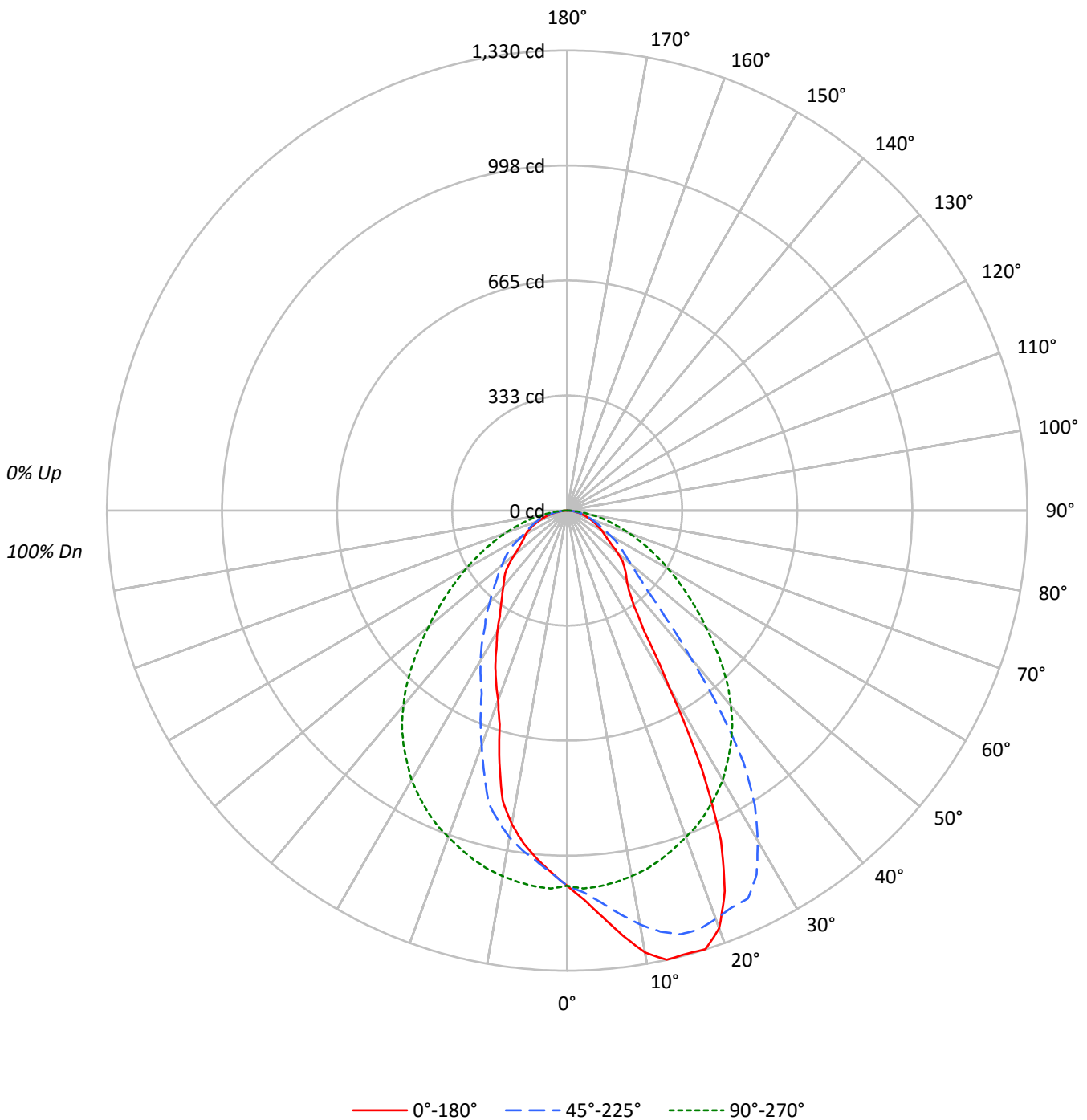
Input Watts (W): 26.4
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	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°	32130	32130	32130
5°	35067	32411	30022
10°	39029	32283	27671
15°	40693	32040	23160
20°	40518	31661	18383
25°	34360	31307	16046
30°	20224	30768	13781
35°	12150	29830	12034
40°	10408	28479	11101
45°	9839	26545	10555
50°	8795	24108	9132
55°	7330	22006	8255
60°	6815	20053	8213
65°	6289	18264	7943
70°	5934	16460	7485
75°	5598	14562	6812
80°	5017	12166	5989
85°	4725	9553	4725



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	104.0	5.3
10°-20°	296.2	15.1
20°-30°	404.5	20.6
30°-40°	376.9	19.2
40°-50°	311.6	15.9
50°-60°	229.7	11.7
60°-70°	146.9	7.5
70°-80°	75.6	3.8
80°-90°	19.4	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°	804.7	41.0
0°-40°	1181.5	60.1
0°-60°	1722.9	87.7
0°-90°	1964.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1964.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1084	1084	1084	1084	1084	
5°	1179	1137	1090	1017	1009	116
15°	1327	1268	1044	876	755	374
25°	1051	1237	958	585	491	456
35°	336	889	825	415	333	228
45°	235	331	634	290	252	180
55°	142	190	426	208	160	131
65°	90	104	260	121	113	89
75°	49	53	127	67	60	51
85°	14	14	28	16	14	16
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°	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4
2.5°	1126.0	1125.2	1126.4	1125.6	1124.8	1122.7	1121.1	1116.2	1108.9	1104.8	1108.9
5°	1179.0	1182.3	1181.0	1179.4	1175.7	1172.5	1165.1	1160.6	1147.6	1137.4	1140.3
7.5°	1239.3	1243.4	1238.1	1234.4	1232.4	1223.0	1214.9	1202.2	1188.0	1176.5	1170.0
10°	1297.2	1298.4	1296.8	1293.5	1286.6	1276.4	1264.6	1250.3	1232.4	1214.9	1203.0
12.5°	1329.8	1331.9	1334.3	1328.6	1323.3	1315.2	1302.9	1288.7	1266.6	1246.3	1232.8
15°	1326.6	1328.2	1332.7	1330.6	1328.2	1324.5	1317.6	1305.8	1290.3	1267.9	1248.7
17.5°	1329.0	1330.2	1332.3	1324.9	1320.9	1316.4	1307.4	1299.3	1286.2	1268.7	1254.4
20°	1285.0	1305.0	1302.5	1312.3	1316.4	1316.0	1307.4	1291.9	1274.0	1256.0	1249.5
22.5°	1190.4	1206.3	1208.3	1223.4	1242.2	1257.3	1276.0	1282.9	1269.1	1242.2	1233.2
25°	1051.0	1062.4	1073.8	1095.4	1115.4	1157.4	1195.7	1224.6	1240.5	1236.9	1219.3
27.5°	844.7	832.5	877.7	902.6	958.4	1019.6	1073.4	1126.4	1151.7	1185.5	1202.6
30°	591.1	589.9	624.1	667.4	750.9	807.2	907.9	993.1	1059.5	1101.1	1147.6
32.5°	415.0	421.1	446.4	472.9	519.0	610.7	687.7	805.2	918.5	1009.4	1066.5
35°	335.9	336.7	342.4	358.3	386.5	437.4	497.4	611.5	765.2	888.7	973.9
37.5°	294.3	296.8	298.4	307.4	317.6	339.2	377.1	456.2	583.4	721.2	869.2
40°	269.1	271.1	272.7	275.6	281.7	291.9	316.8	354.7	428.1	554.8	719.5
42.5°	251.9	251.1	254.8	256.0	259.3	265.0	276.0	296.4	338.8	424.8	566.7
45°	234.8	236.0	236.0	237.7	240.5	243.8	248.3	260.9	282.5	331.4	442.7
47.5°	216.9	216.5	218.9	220.1	223.0	225.9	229.1	235.6	248.3	276.8	341.2
50°	190.8	191.6	196.1	200.2	204.2	207.9	212.0	216.1	224.2	239.7	279.3
52.5°	163.1	163.1	168.0	170.8	176.5	185.5	192.4	198.5	203.8	211.6	235.2
55°	141.9	142.3	143.9	146.4	150.4	154.9	163.9	174.5	183.5	190.0	203.0
57.5°	127.2	127.6	128.0	130.0	132.1	133.7	139.0	147.2	159.0	170.8	178.6
60°	115.0	114.6	114.6	115.8	117.4	119.4	122.3	125.6	132.1	144.7	158.6
62.5°	101.1	101.9	101.9	103.1	104.4	106.4	107.6	110.9	114.6	120.3	134.5
65°	89.7	90.5	89.7	90.9	91.7	92.9	95.0	96.6	99.9	103.5	109.3
67.5°	78.3	78.7	79.5	79.9	80.7	81.1	82.8	84.8	86.8	89.3	93.8
70°	68.5	68.5	68.5	69.3	70.1	70.1	71.3	72.2	74.2	76.6	79.1
72.5°	57.9	58.3	58.3	57.9	59.5	59.9	60.3	61.2	62.8	64.8	66.9
75°	48.9	48.1	48.1	48.5	49.7	49.7	50.1	50.6	51.8	53.4	54.6
77.5°	38.3	38.3	38.7	39.1	39.5	39.5	40.4	40.4	42.0	42.8	43.6
80°	29.4	30.2	30.6	30.2	30.2	30.6	30.6	31.4	31.8	32.2	33.0
82.5°	22.0	22.4	21.6	21.6	22.0	22.0	22.4	22.4	22.8	23.2	23.2
85°	13.9	13.9	14.3	13.9	14.3	13.9	13.9	14.7	14.3	14.3	14.7
87.5°	6.5	6.9	6.5	6.9	6.5	6.9	6.9	6.9	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



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4
2.5°	1107.6	1107.2	1105.2	1100.7	1097.5	1091.3	1091.3	1093.4	1082.8	1075.4	1075.0
5°	1133.3	1129.3	1122.3	1113.8	1106.0	1095.4	1091.3	1089.7	1075.4	1064.4	1060.8
7.5°	1160.6	1150.5	1138.6	1124.8	1111.7	1096.6	1088.9	1082.8	1064.4	1051.0	1042.8
10°	1189.2	1172.9	1154.5	1134.6	1116.6	1096.2	1083.6	1073.0	1051.8	1033.0	1023.7
12.5°	1214.5	1191.6	1168.4	1142.3	1117.8	1092.2	1074.6	1060.8	1035.9	1013.5	1002.1
15°	1226.3	1201.8	1182.7	1146.8	1113.8	1087.7	1065.2	1044.5	1018.0	993.1	975.6
17.5°	1236.5	1209.6	1184.3	1150.5	1112.1	1078.3	1051.4	1024.9	996.4	970.3	948.7
20°	1233.6	1210.8	1179.8	1143.9	1107.6	1068.5	1037.9	1004.1	968.6	942.1	919.3
22.5°	1217.3	1198.6	1166.4	1132.1	1097.0	1055.1	1020.4	983.7	940.1	911.1	885.5
25°	1196.5	1178.6	1146.8	1111.3	1076.7	1035.9	995.1	957.6	910.7	876.1	843.1
27.5°	1180.2	1153.3	1121.5	1082.0	1048.5	1009.8	967.0	929.1	878.5	840.2	801.9
30°	1161.5	1130.9	1091.7	1049.8	1014.3	978.8	937.2	899.3	843.5	799.9	752.2
32.5°	1107.6	1108.1	1061.6	1014.7	976.8	938.9	901.8	861.4	806.0	754.6	705.7
35°	1037.5	1064.8	1030.6	976.8	929.9	894.8	864.3	824.7	763.2	710.2	654.7
37.5°	943.8	991.9	995.9	940.1	888.3	847.1	817.0	784.0	722.0	664.9	609.9
40°	850.0	913.6	938.9	900.1	843.9	796.6	766.4	736.3	678.0	616.4	565.4
42.5°	735.0	838.2	869.6	858.2	797.8	746.9	715.1	687.7	631.1	570.7	520.2
45°	605.4	744.8	790.5	802.3	751.3	696.7	660.0	633.5	583.8	530.8	478.2
47.5°	486.4	639.6	715.1	727.3	700.4	647.4	605.4	577.7	538.1	492.5	440.3
50°	371.0	527.9	636.0	654.7	648.2	594.4	555.7	523.0	492.9	452.1	403.2
52.5°	295.2	421.9	550.4	585.4	587.5	545.1	504.3	474.5	445.2	413.0	368.5
55°	235.6	326.1	456.2	515.7	521.4	492.1	454.6	426.0	404.0	373.8	336.3
57.5°	198.5	252.3	365.3	445.6	448.0	439.9	404.0	380.4	362.0	335.9	302.9
60°	169.6	200.2	281.7	375.5	387.7	387.7	359.2	338.4	320.8	301.3	269.9
62.5°	146.8	163.5	213.6	298.4	329.8	334.7	316.8	298.4	285.4	265.8	236.9
65°	123.5	136.2	165.5	230.7	274.0	282.9	274.0	260.5	250.3	229.9	207.1
67.5°	101.5	113.7	132.1	174.9	222.2	233.2	231.6	224.6	214.0	198.9	174.9
70°	84.0	91.3	104.8	129.6	174.5	191.2	196.1	190.0	180.6	164.3	146.8
72.5°	69.3	75.0	81.5	99.5	130.5	152.5	160.6	157.4	150.4	134.9	120.3
75°	56.7	60.3	64.8	73.4	93.8	118.6	128.0	127.2	120.3	107.2	95.4
77.5°	45.7	46.9	50.1	55.4	65.6	88.1	95.4	97.8	92.5	81.5	72.2
80°	34.2	35.9	37.5	40.4	45.3	58.3	67.7	71.3	66.9	60.3	51.0
82.5°	24.1	24.5	26.1	27.7	30.2	35.5	45.3	49.3	45.3	38.3	35.5
85°	15.1	14.7	15.1	15.5	17.9	19.2	25.3	28.1	27.3	23.2	20.0
87.5°	6.9	6.9	6.5	6.9	6.5	7.7	9.0	13.0	9.8	8.6	7.7
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°	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4	1084.4
2.5°	1071.8	1070.5	1066.5	1060.8	1055.9	1047.7	1047.7	1049.8	1049.3	1050.2	1049.3
5°	1054.6	1048.9	1042.8	1035.1	1027.7	1017.1	1015.9	1016.7	1016.3	1015.9	1013.5
7.5°	1032.6	1026.1	1018.4	1008.6	1000.4	990.2	987.4	986.6	983.3	982.1	978.8
10°	1011.4	1003.7	993.5	981.7	970.7	958.8	951.5	947.4	942.1	936.4	931.5
12.5°	987.8	977.6	964.6	950.3	931.9	918.9	907.9	901.0	893.6	883.8	876.9
15°	962.5	941.7	926.2	903.0	880.6	876.1	859.4	837.4	835.7	788.0	771.3
17.5°	928.7	911.6	882.6	852.4	821.9	797.0	797.4	737.9	719.5	719.1	689.8
20°	893.6	870.0	836.5	806.0	773.8	722.4	681.6	662.1	632.3	620.9	604.2
22.5°	852.4	821.5	782.3	740.7	695.9	654.3	614.4	595.6	580.5	567.9	561.0
25°	803.5	772.1	725.2	673.5	623.3	584.6	562.6	554.0	528.3	519.4	510.8
27.5°	754.2	719.9	658.8	609.1	567.9	541.4	518.6	504.3	492.1	469.2	459.0
30°	707.3	652.3	601.7	556.1	525.1	500.2	483.5	454.6	437.4	426.8	422.3
32.5°	656.4	597.6	552.0	512.4	480.6	459.0	434.2	414.6	406.9	393.0	373.0
35°	604.2	550.8	503.1	471.3	444.0	414.6	399.1	380.4	360.8	350.2	348.6
37.5°	553.6	503.1	468.8	435.4	402.4	385.3	362.4	342.4	335.5	325.7	315.1
40°	508.0	464.7	432.9	394.6	374.7	348.2	330.6	320.4	303.7	300.0	296.8
42.5°	470.5	433.4	397.5	363.2	340.0	318.8	303.3	291.5	286.2	277.2	274.4
45°	432.5	398.3	361.6	334.7	308.2	290.3	279.7	269.5	263.4	260.9	256.0
47.5°	398.3	364.9	331.0	298.0	280.1	268.2	256.4	251.1	247.5	242.2	239.3
50°	365.7	328.6	296.8	276.0	256.8	246.2	238.5	233.6	227.9	222.2	214.0
52.5°	332.7	300.9	270.3	248.3	234.0	227.1	219.7	214.4	203.0	192.0	185.1
55°	299.2	266.6	241.7	225.0	214.8	207.5	198.9	183.5	172.9	166.7	163.5
57.5°	269.1	239.7	217.7	203.8	196.5	184.3	169.2	159.4	154.1	151.7	150.0
60°	236.9	211.6	193.2	182.6	171.2	154.9	146.8	141.9	140.2	139.4	138.2
62.5°	209.1	186.7	172.4	160.6	144.3	135.8	131.3	128.8	128.8	127.6	126.8
65°	179.8	162.3	150.0	132.9	124.3	120.7	119.0	117.8	116.6	116.2	114.6
67.5°	155.7	140.2	124.3	115.4	110.1	108.0	106.4	106.0	104.4	103.1	101.9
70°	131.3	116.2	103.1	99.1	96.2	95.4	93.8	92.1	90.9	89.3	88.5
72.5°	106.8	92.5	88.1	86.0	83.2	81.9	79.9	78.7	76.6	75.8	75.0
75°	81.5	75.8	73.4	71.8	69.7	66.9	66.0	64.8	64.0	62.8	61.6
77.5°	64.8	61.6	58.7	56.7	55.0	53.0	51.4	51.0	50.1	48.9	48.5
80°	48.5	46.1	44.8	42.8	40.8	39.5	38.7	38.3	37.1	36.7	36.3
82.5°	33.4	31.4	30.6	28.1	27.3	27.3	26.9	26.1	25.3	24.9	24.5
85°	18.8	17.9	16.7	17.1	15.9	15.9	15.5	15.1	14.7	14.3	13.9
87.5°	7.3	6.9	6.5	6.1	6.1	4.9	4.9	4.9	5.3	4.9	4.5
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: P242237

CATALOG NUMBER: S121RDR-S685D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1084.4	1084.4	1084.4	1084.4
2.5°	1050.6	1051.4	1048.5	1046.9
5°	1013.5	1012.3	1010.6	1009.4
7.5°	975.6	974.3	974.3	969.4
10°	929.5	926.2	923.8	919.7
12.5°	870.8	865.9	864.3	859.4
15°	759.9	749.7	742.8	755.0
17.5°	682.9	656.4	658.4	648.2
20°	603.8	593.2	598.5	583.0
22.5°	552.4	545.9	539.8	536.5
25°	504.7	497.0	487.6	490.8
27.5°	444.8	444.8	438.7	441.1
30°	414.2	410.9	400.7	402.8
32.5°	366.5	362.4	361.2	362.0
35°	343.7	337.1	335.1	332.7
37.5°	311.9	309.4	309.8	308.2
40°	290.7	288.6	286.2	287.0
42.5°	272.3	271.1	268.7	269.1
45°	254.4	253.2	251.9	251.9
47.5°	234.4	232.0	229.9	227.5
50°	208.3	203.4	199.8	198.1
52.5°	180.2	177.7	175.3	175.3
55°	162.3	161.0	160.2	159.8
57.5°	149.6	148.8	148.8	147.6
60°	138.2	138.2	137.8	138.6
62.5°	127.2	126.0	126.4	126.4
65°	114.6	114.1	113.7	113.3
67.5°	101.1	100.7	101.1	100.3
70°	87.6	87.6	87.2	86.4
72.5°	73.8	74.6	73.8	73.4
75°	60.7	60.3	60.7	59.5
77.5°	48.5	46.9	47.7	48.1
80°	35.9	35.9	35.5	35.1
82.5°	24.1	24.5	23.6	23.6
85°	13.9	13.9	13.0	13.9
87.5°	4.1	4.1	4.1	4.9
90°	0.0	0.0	0.0	0.0

(END OF REPORT)