

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: P242226

Luminaire Tested: **S121RDR-S490D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242226  
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-S490D835-X4F0-XX-UDD-A-W  
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1730.3 lumens  
Efficiency: N/A  
Efficacy: 92.0 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

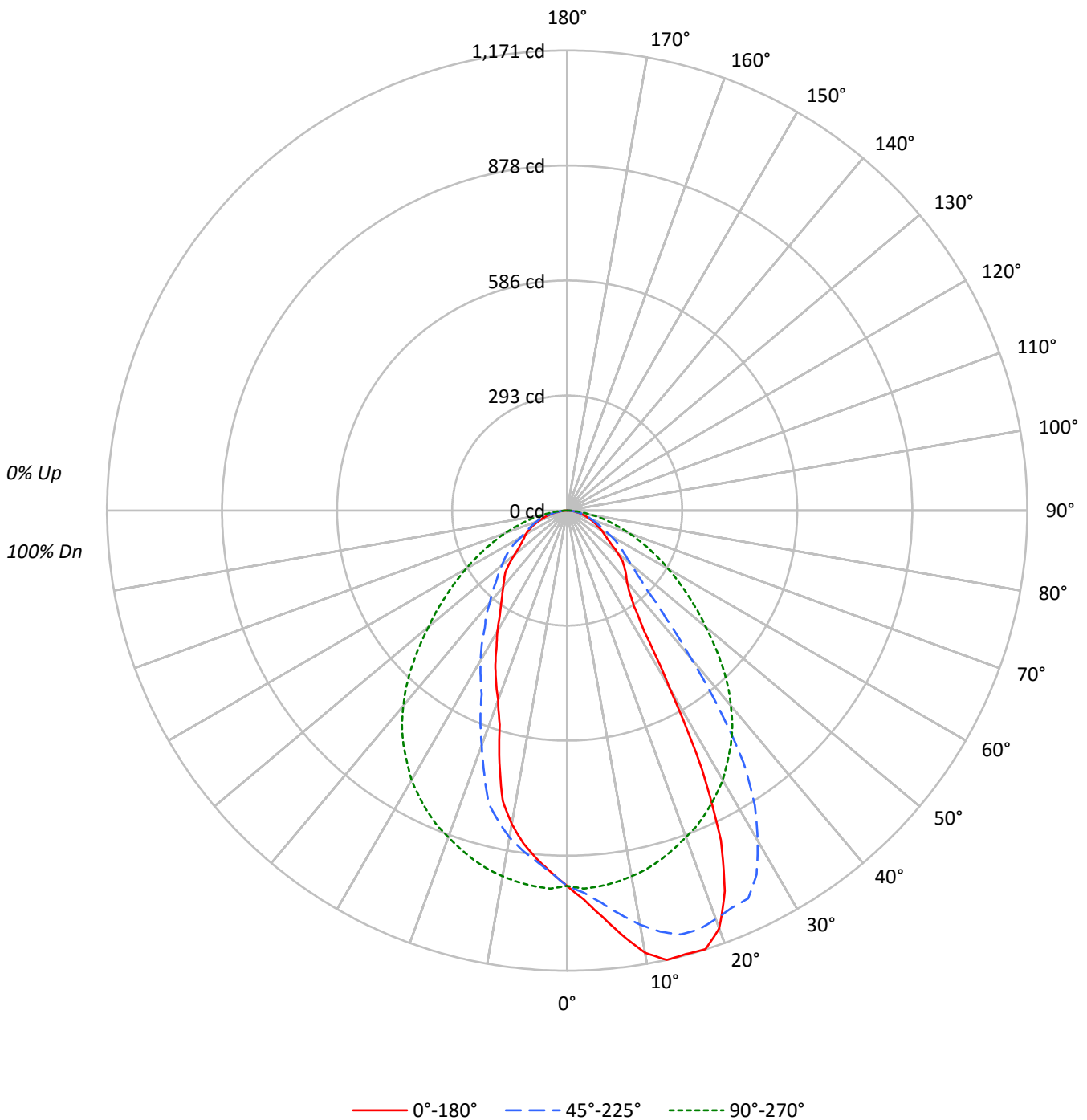
Input Watts (W): 18.8  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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°	28296	28296	28296
5°	30882	28544	26441
10°	34371	28432	24370
15°	35838	28215	20396
20°	35684	27883	16188
25°	30260	27573	14133
30°	17812	27097	12136
35°	10699	26271	10598
40°	9167	25079	9778
45°	8665	23378	9298
50°	7744	21232	8044
55°	6452	19382	7268
60°	5997	17659	7236
65°	5539	16083	6997
70°	5224	14493	6593
75°	4934	12822	5999
80°	4419	10716	5272
85°	4148	8431	4148



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	91.5	5.3
10°-20°	260.8	15.1
20°-30°	356.3	20.6
30°-40°	331.9	19.2
40°-50°	274.4	15.9
50°-60°	202.3	11.7
60°-70°	129.4	7.5
70°-80°	66.5	3.8
80°-90°	17.1	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°	708.6	41.0
0°-40°	1040.6	60.1
0°-60°	1517.3	87.7
0°-90°	1730.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1730.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	955	955	955	955	955	
5°	1038	1002	960	896	889	102
15°	1168	1117	920	772	665	329
25°	926	1089	843	515	432	402
35°	296	783	726	365	293	201
45°	207	292	558	256	222	158
55°	125	167	375	183	141	115
65°	79	91	229	106	100	79
75°	43	47	112	59	52	45
85°	12	13	25	14	12	14
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°	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0
2.5°	991.6	990.9	992.0	991.3	990.6	988.8	987.3	983.0	976.6	973.0	976.6
5°	1038.3	1041.2	1040.1	1038.7	1035.5	1032.6	1026.1	1022.2	1010.7	1001.7	1004.2
7.5°	1091.5	1095.1	1090.4	1087.2	1085.4	1077.1	1069.9	1058.8	1046.2	1036.2	1030.4
10°	1142.4	1143.5	1142.1	1139.2	1133.1	1124.1	1113.7	1101.2	1085.4	1069.9	1059.5
12.5°	1171.2	1173.0	1175.1	1170.1	1165.4	1158.2	1147.5	1134.9	1115.5	1097.6	1085.7
15°	1168.3	1169.7	1173.7	1171.9	1169.7	1166.5	1160.4	1150.0	1136.3	1116.6	1099.7
17.5°	1170.4	1171.5	1173.3	1166.9	1163.3	1159.3	1151.4	1144.2	1132.7	1117.3	1104.7
20°	1131.7	1149.3	1147.1	1155.7	1159.3	1159.0	1151.4	1137.8	1122.0	1106.2	1100.4
22.5°	1048.4	1062.4	1064.2	1077.5	1094.0	1107.3	1123.8	1129.9	1117.7	1094.0	1086.1
25°	925.6	935.6	945.7	964.7	982.3	1019.3	1053.0	1078.5	1092.5	1089.3	1073.9
27.5°	743.9	733.1	773.0	794.9	844.1	897.9	945.3	992.0	1014.3	1044.1	1059.1
30°	520.6	519.5	549.7	587.7	661.3	710.9	799.6	874.6	933.1	969.7	1010.7
32.5°	365.5	370.9	393.1	416.5	457.0	537.8	605.7	709.1	808.9	889.0	939.2
35°	295.8	296.6	301.6	315.6	340.4	385.2	438.0	538.5	673.9	782.7	857.7
37.5°	259.2	261.4	262.8	270.7	279.7	298.7	332.1	401.8	513.8	635.1	765.5
40°	237.0	238.8	240.2	242.7	248.1	257.1	279.0	312.4	377.0	488.6	633.7
42.5°	221.9	221.2	224.4	225.5	228.3	233.4	243.1	261.0	298.4	374.1	499.1
45°	206.8	207.9	207.9	209.3	211.8	214.7	218.7	229.8	248.8	291.9	389.9
47.5°	191.0	190.6	192.8	193.9	196.4	198.9	201.8	207.5	218.7	243.8	300.5
50°	168.0	168.7	172.7	176.3	179.9	183.1	186.7	190.3	197.5	211.1	245.9
52.5°	143.6	143.6	147.9	150.4	155.5	163.4	169.5	174.8	179.5	186.3	207.2
55°	124.9	125.3	126.7	128.9	132.5	136.4	144.3	153.7	161.6	167.3	178.8
57.5°	112.0	112.4	112.7	114.5	116.3	117.8	122.4	129.6	140.0	150.4	157.3
60°	101.2	100.9	100.9	102.0	103.4	105.2	107.7	110.6	116.3	127.5	139.7
62.5°	89.0	89.8	89.8	90.8	91.9	93.7	94.8	97.7	100.9	105.9	118.5
65°	79.0	79.7	79.0	80.1	80.8	81.9	83.7	85.1	88.0	91.2	96.2
67.5°	68.9	69.3	70.0	70.4	71.1	71.4	72.9	74.7	76.5	78.6	82.6
70°	60.3	60.3	60.3	61.0	61.8	61.8	62.8	63.5	65.3	67.5	69.7
72.5°	51.0	51.3	51.3	51.0	52.4	52.8	53.1	53.9	55.3	57.1	58.9
75°	43.1	42.4	42.4	42.7	43.8	43.8	44.2	44.5	45.6	47.0	48.1
77.5°	33.7	33.7	34.1	34.5	34.8	34.8	35.5	35.5	37.0	37.7	38.4
80°	25.9	26.6	26.9	26.6	26.6	26.9	26.9	27.6	28.0	28.4	29.1
82.5°	19.4	19.7	19.0	19.0	19.4	19.4	19.7	19.7	20.1	20.5	20.5
85°	12.2	12.2	12.6	12.2	12.6	12.2	12.2	12.9	12.6	12.6	12.9
87.5°	5.7	6.1	5.7	6.1	5.7	6.1	6.1	6.1	6.1	6.1	5.7
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):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0
2.5°	975.5	975.1	973.3	969.4	966.5	961.1	961.1	962.9	953.6	947.1	946.8
5°	998.1	994.5	988.4	980.9	974.1	964.7	961.1	959.7	947.1	937.4	934.2
7.5°	1022.2	1013.2	1002.8	990.6	979.1	965.8	959.0	953.6	937.4	925.6	918.4
10°	1047.3	1032.9	1016.8	999.2	983.4	965.4	954.3	945.0	926.3	909.8	901.5
12.5°	1069.6	1049.5	1029.0	1006.0	984.5	961.8	946.4	934.2	912.3	892.6	882.5
15°	1080.0	1058.4	1041.6	1010.0	980.9	957.9	938.2	919.8	896.5	874.6	859.2
17.5°	1088.9	1065.3	1043.0	1013.2	979.4	949.6	925.9	902.6	877.5	854.5	835.5
20°	1086.4	1066.3	1039.0	1007.4	975.5	941.0	914.1	884.3	853.1	829.7	809.6
22.5°	1072.1	1055.6	1027.2	997.0	966.2	929.2	898.7	866.3	827.9	802.4	779.8
25°	1053.8	1038.0	1010.0	978.7	948.2	912.3	876.4	843.4	802.1	771.6	742.5
27.5°	1039.4	1015.7	987.7	952.9	923.4	889.3	851.6	818.2	773.7	740.0	706.2
30°	1022.9	996.0	961.5	924.5	893.3	862.0	825.4	792.0	742.8	704.4	662.4
32.5°	975.5	975.9	934.9	893.6	860.2	826.9	794.2	758.6	709.8	664.6	621.5
35°	913.7	937.8	907.6	860.2	819.0	788.1	761.2	726.3	672.1	625.4	576.6
37.5°	831.2	873.5	877.1	827.9	782.3	746.1	719.5	690.4	635.8	585.6	537.1
40°	748.6	804.6	826.9	792.7	743.2	701.6	675.0	648.4	597.1	542.9	498.0
42.5°	647.3	738.2	765.8	755.8	702.6	657.7	629.7	605.7	555.8	502.6	458.1
45°	533.2	656.0	696.2	706.6	661.7	613.6	581.3	557.9	514.1	467.5	421.1
47.5°	428.3	563.3	629.7	640.5	616.8	570.1	533.2	508.8	473.9	433.7	387.8
50°	326.7	464.9	560.1	576.6	570.9	523.5	489.4	460.6	434.1	398.2	355.1
52.5°	259.9	371.6	484.7	515.6	517.4	480.0	444.1	417.9	392.1	363.7	324.6
55°	207.5	287.2	401.8	454.2	459.2	433.4	400.3	375.2	355.8	329.2	296.2
57.5°	174.8	222.2	321.7	392.4	394.6	387.4	355.8	335.0	318.8	295.8	266.8
60°	149.4	176.3	248.1	330.7	341.4	341.4	316.3	298.0	282.6	265.3	237.7
62.5°	129.3	144.0	188.1	262.8	290.5	294.8	279.0	262.8	251.3	234.1	208.6
65°	108.8	119.9	145.8	203.2	241.3	249.2	241.3	229.4	220.4	202.5	182.4
67.5°	89.4	100.2	116.3	154.0	195.7	205.4	203.9	197.8	188.5	175.2	154.0
70°	74.0	80.4	92.3	114.2	153.7	168.4	172.7	167.3	159.1	144.7	129.3
72.5°	61.0	66.1	71.8	87.6	114.9	134.3	141.5	138.6	132.5	118.8	105.9
75°	49.9	53.1	57.1	64.6	82.6	104.5	112.7	112.0	105.9	94.4	84.0
77.5°	40.2	41.3	44.2	48.8	57.8	77.6	84.0	86.2	81.5	71.8	63.5
80°	30.2	31.6	33.0	35.5	39.9	51.3	59.6	62.8	58.9	53.1	44.9
82.5°	21.2	21.5	23.0	24.4	26.6	31.2	39.9	43.4	39.9	33.7	31.2
85°	13.3	12.9	13.3	13.6	15.8	16.9	22.3	24.8	24.1	20.5	17.6
87.5°	6.1	6.1	5.7	6.1	5.7	6.8	7.9	11.5	8.6	7.5	6.8
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°	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0
2.5°	943.9	942.8	939.2	934.2	929.9	922.7	922.7	924.5	924.2	924.9	924.2
5°	928.8	923.8	918.4	911.6	905.1	895.8	894.7	895.4	895.1	894.7	892.6
7.5°	909.4	903.7	896.9	888.2	881.1	872.1	869.6	868.9	866.0	864.9	862.0
10°	890.8	883.9	875.0	864.6	854.9	844.4	838.0	834.4	829.7	824.7	820.4
12.5°	869.9	861.0	849.5	836.9	820.7	809.3	799.6	793.5	787.0	778.4	772.3
15°	847.7	829.4	815.7	795.3	775.5	771.6	756.8	737.5	736.0	694.0	679.3
17.5°	817.9	802.8	777.3	750.7	723.8	701.9	702.3	649.9	633.7	633.3	607.5
20°	787.0	766.2	736.7	709.8	681.4	636.2	600.3	583.1	556.9	546.8	532.1
22.5°	750.7	723.5	689.0	652.4	612.9	576.2	541.1	524.5	511.3	500.1	494.0
25°	707.7	680.0	638.7	593.1	549.0	514.9	495.5	487.9	465.3	457.4	449.9
27.5°	664.2	634.1	580.2	536.4	500.1	476.8	456.7	444.1	433.4	413.2	404.3
30°	622.9	574.5	529.9	489.7	462.4	440.5	425.8	400.3	385.2	375.9	372.0
32.5°	578.0	526.3	486.1	451.3	423.3	404.3	382.4	365.1	358.3	346.1	328.5
35°	532.1	485.1	443.0	415.0	391.0	365.1	351.5	335.0	317.7	308.4	307.0
37.5°	487.6	443.0	412.9	383.4	354.4	339.3	319.2	301.6	295.5	286.9	277.5
40°	447.4	409.3	381.3	347.5	330.0	306.6	291.2	282.2	267.5	264.2	261.4
42.5°	414.3	381.7	350.1	319.9	299.4	280.8	267.1	256.7	252.0	244.1	241.6
45°	380.9	350.8	318.5	294.8	271.4	255.6	246.3	237.3	231.9	229.8	225.5
47.5°	350.8	321.3	291.5	262.5	246.7	236.2	225.8	221.2	217.9	213.3	210.8
50°	322.1	289.4	261.4	243.1	226.2	216.9	210.0	205.7	200.7	195.7	188.5
52.5°	293.0	265.0	238.0	218.7	206.1	200.0	193.5	188.9	178.8	169.1	163.0
55°	263.5	234.8	212.9	198.2	189.2	182.7	175.2	161.6	152.2	146.8	144.0
57.5°	237.0	211.1	191.7	179.5	173.1	162.3	149.0	140.4	135.7	133.6	132.1
60°	208.6	186.3	170.2	160.8	150.8	136.4	129.3	124.9	123.5	122.8	121.7
62.5°	184.2	164.4	151.9	141.5	127.1	119.6	115.6	113.5	113.5	112.4	111.7
65°	158.3	142.9	132.1	117.0	109.5	106.3	104.8	103.8	102.7	102.3	100.9
67.5°	137.2	123.5	109.5	101.6	96.9	95.1	93.7	93.3	91.9	90.8	89.8
70°	115.6	102.3	90.8	87.2	84.7	84.0	82.6	81.1	80.1	78.6	77.9
72.5°	94.1	81.5	77.6	75.8	73.2	72.2	70.4	69.3	67.5	66.8	66.1
75°	71.8	66.8	64.6	63.2	61.4	58.9	58.2	57.1	56.4	55.3	54.2
77.5°	57.1	54.2	51.7	49.9	48.5	46.7	45.2	44.9	44.2	43.1	42.7
80°	42.7	40.6	39.5	37.7	35.9	34.8	34.1	33.7	32.7	32.3	32.0
82.5°	29.4	27.6	26.9	24.8	24.1	24.1	23.7	23.0	22.3	21.9	21.5
85°	16.5	15.8	14.7	15.1	14.0	14.0	13.6	13.3	12.9	12.6	12.2
87.5°	6.5	6.1	5.7	5.4	5.4	4.3	4.3	4.3	4.7	4.3	3.9
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: P242226

CATALOG NUMBER: S121RDR-S490D835-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	955.0	955.0	955.0	955.0
2.5°	925.2	925.9	923.4	922.0
5°	892.6	891.5	890.0	889.0
7.5°	859.2	858.1	858.1	853.8
10°	818.6	815.7	813.6	810.0
12.5°	766.9	762.6	761.2	756.8
15°	669.2	660.3	654.2	664.9
17.5°	601.4	578.0	579.8	570.9
20°	531.7	522.4	527.1	513.4
22.5°	486.5	480.7	475.4	472.5
25°	444.5	437.7	429.4	432.3
27.5°	391.7	391.7	386.3	388.5
30°	364.8	361.9	352.9	354.7
32.5°	322.8	319.2	318.1	318.8
35°	302.7	296.9	295.1	293.0
37.5°	274.7	272.5	272.9	271.4
40°	256.0	254.2	252.0	252.8
42.5°	239.8	238.8	236.6	237.0
45°	224.0	223.0	221.9	221.9
47.5°	206.4	204.3	202.5	200.3
50°	183.5	179.2	175.9	174.5
52.5°	158.7	156.5	154.4	154.4
55°	142.9	141.8	141.1	140.7
57.5°	131.8	131.0	131.0	130.0
60°	121.7	121.7	121.4	122.1
62.5°	112.0	110.9	111.3	111.3
65°	100.9	100.5	100.2	99.8
67.5°	89.0	88.7	89.0	88.3
70°	77.2	77.2	76.8	76.1
72.5°	65.0	65.7	65.0	64.6
75°	53.5	53.1	53.5	52.4
77.5°	42.7	41.3	42.0	42.4
80°	31.6	31.6	31.2	30.9
82.5°	21.2	21.5	20.8	20.8
85°	12.2	12.2	11.5	12.2
87.5°	3.6	3.6	3.6	4.3
90°	0.0	0.0	0.0	0.0

(END OF REPORT)