

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: P242974

Luminaire Tested: **S121DR-H685D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242974
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-57)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121DR-H685D927-X4F0-XX-UDD-A-W
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 2700K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2129.4 lumens
Efficiency: N/A
Efficacy: 90.2 lumens/watt
Spacing Criteria (0/90/45): 1.13 / 1.2 / 1.28
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

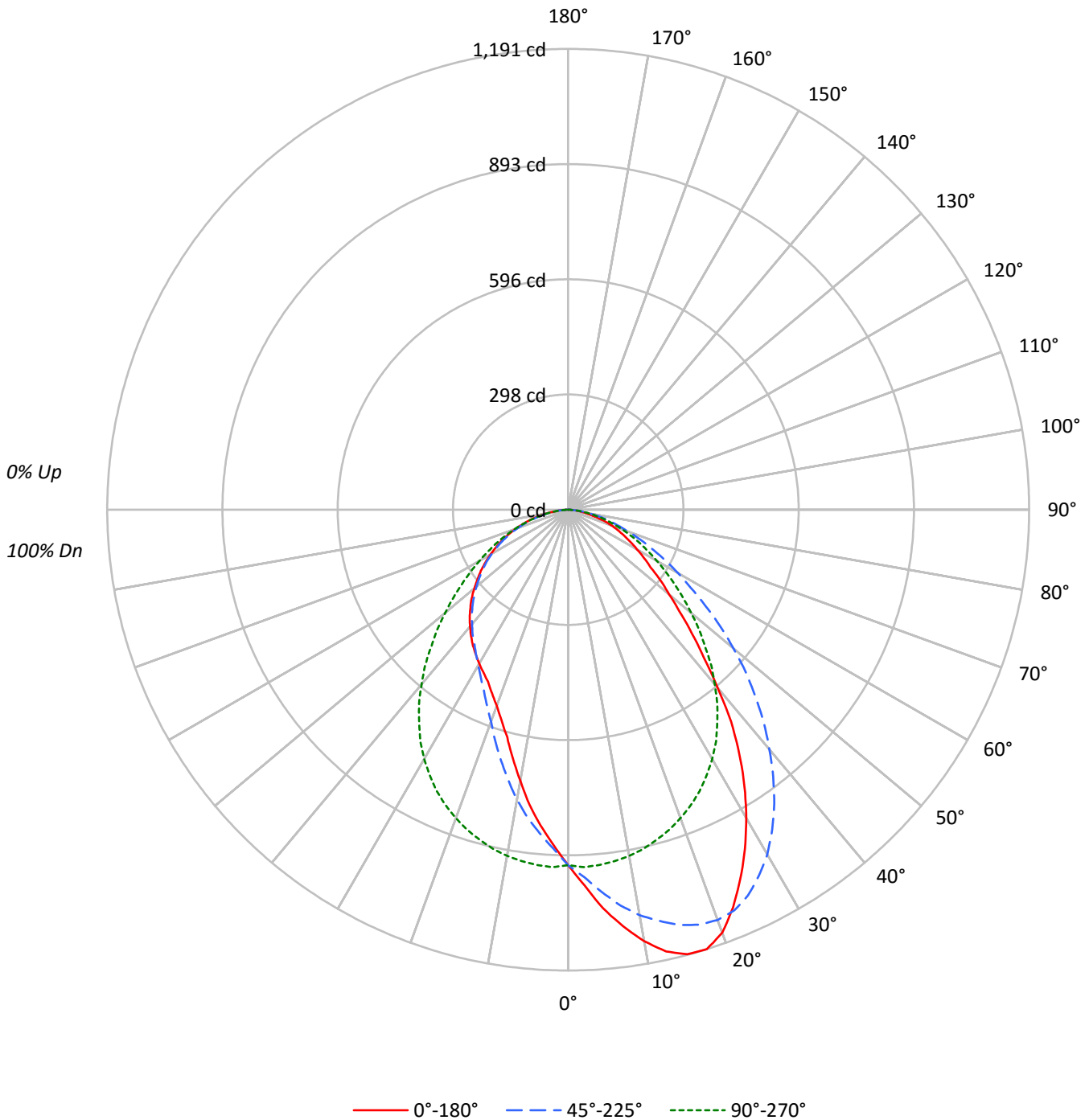
Input Watts (W): 23.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	81	98	91	85	80	88	83	79	84	80	77	81	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	72	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	53	45	40	51	45	40	50	44	40	38
8	63	50	42	37	62	50	42	36	48	41	36	47	41	36	46	40	36	34
9	59	46	38	33	58	46	38	33	45	38	33	44	37	33	43	37	33	31
10	56	43	35	30	54	42	35	30	41	35	30	41	34	30	40	34	30	28

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	27221	27221	27221
5°	30757	27414	24356
10°	34073	27331	21410
15°	36485	27092	18675
20°	36690	26742	17002
25°	34412	26239	16033
30°	31483	25448	15718
35°	27881	24282	15517
40°	23231	22774	15251
45°	18940	20951	14972
50°	15719	19093	14594
55°	13452	17311	14216
60°	12184	15668	13766
65°	11253	14260	13279
70°	10378	12847	12492
75°	8380	11391	11517
80°	6689	9214	9845
85°	5031	6799	8057



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	87.8	4.1
10°-20°	251.5	11.8
20°-30°	366.1	17.2
30°-40°	408.1	19.2
40°-50°	377.3	17.7
50°-60°	300.6	14.1
60°-70°	205.8	9.7
70°-80°	106.8	5.0
80°-90°	25.3	1.2
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°	705.3	33.1
0°-40°	1113.5	52.3
0°-60°	1791.5	84.1
0°-90°	2129.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2129.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	919	919	919	919	919	
5°	1034	991	922	840	819	102
15°	1189	1111	883	670	609	333
25°	1053	1100	803	516	490	482
35°	771	928	671	422	429	478
45°	452	684	500	349	357	352
55°	260	432	335	268	275	238
65°	160	239	203	184	189	160
75°	73	107	100	94	101	80
85°	15	20	20	21	24	18
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°	918.7	918.7	918.7	918.7	918.7	918.7	918.7	918.7	918.7	918.7	918.7
2.5°	972.0	972.0	969.4	970.5	969.0	966.4	962.4	957.9	952.4	950.2	949.0
5°	1034.1	1035.6	1033.7	1030.0	1029.3	1026.3	1017.5	1012.3	1000.5	991.2	988.2
7.5°	1085.9	1088.5	1088.5	1081.8	1078.9	1071.5	1065.2	1056.7	1041.9	1031.5	1023.0
10°	1132.5	1133.6	1129.5	1125.8	1119.9	1114.0	1103.3	1092.5	1076.6	1064.1	1050.0
12.5°	1169.5	1171.7	1168.7	1162.8	1155.8	1148.0	1134.7	1121.0	1105.5	1088.5	1073.3
15°	1189.4	1192.8	1193.1	1188.3	1183.2	1173.9	1164.3	1149.5	1132.5	1111.4	1086.6
17.5°	1190.9	1192.4	1193.5	1189.8	1186.5	1183.2	1173.5	1161.3	1145.1	1124.4	1101.4
20°	1163.6	1166.9	1170.6	1167.3	1168.7	1168.7	1164.7	1158.4	1145.1	1128.4	1106.2
22.5°	1112.5	1120.3	1125.1	1128.4	1131.8	1136.6	1141.4	1138.4	1133.2	1121.0	1101.1
25°	1052.6	1058.9	1068.1	1071.1	1073.7	1087.7	1096.2	1102.2	1102.2	1099.6	1086.3
27.5°	989.0	993.1	1000.8	1011.2	1020.8	1029.3	1047.1	1058.1	1067.0	1067.0	1060.0
30°	920.2	926.1	935.4	942.4	954.2	971.6	986.4	999.7	1020.1	1028.9	1027.5
32.5°	847.7	853.6	863.2	869.2	886.2	900.2	923.2	943.9	967.2	980.5	988.6
35°	770.8	771.1	787.4	797.0	811.8	829.2	857.3	880.6	906.1	928.3	945.7
37.5°	691.6	691.3	702.7	719.7	731.6	756.0	784.8	810.7	846.2	869.9	897.3
40°	600.6	608.4	618.0	633.6	653.9	682.7	710.1	743.8	779.3	808.9	838.1
42.5°	519.3	525.6	541.1	558.5	580.3	604.7	638.0	675.4	710.1	748.6	781.1
45°	452.0	455.3	464.5	478.6	501.5	529.3	564.0	603.6	644.7	683.9	720.1
47.5°	389.8	399.8	404.6	417.6	434.2	460.1	496.3	531.8	579.2	622.8	662.4
50°	341.0	342.9	351.4	361.0	380.6	399.8	427.2	463.8	507.8	557.0	597.3
52.5°	301.1	300.3	307.3	315.9	329.5	349.9	373.6	409.1	446.4	495.2	539.2
55°	260.4	264.1	267.4	275.9	288.1	303.6	323.6	353.6	388.7	432.0	478.2
57.5°	232.3	232.6	234.5	241.5	249.7	261.9	281.1	306.6	338.0	375.8	420.5
60°	205.6	206.0	209.3	211.6	217.1	227.5	242.3	263.3	291.1	327.3	366.5
62.5°	182.7	183.1	184.9	187.1	192.3	196.4	209.0	227.1	249.7	281.8	315.5
65°	160.5	160.9	160.9	163.8	167.2	170.9	179.7	191.2	213.0	238.6	268.5
67.5°	139.1	141.3	140.5	142.8	145.7	147.6	153.9	164.2	179.0	200.5	226.4
70°	119.8	119.5	120.6	121.7	122.8	125.8	129.8	136.8	149.4	164.6	187.5
72.5°	99.1	96.9	98.4	99.9	101.7	103.9	107.3	112.4	122.1	134.3	151.3
75°	73.2	72.1	74.3	74.7	78.0	81.0	84.7	89.9	96.9	107.3	118.4
77.5°	53.3	54.7	55.5	56.2	56.6	59.9	64.0	68.4	72.5	82.1	90.6
80°	39.2	39.2	39.6	40.3	41.1	41.8	44.4	47.3	50.7	56.6	65.1
82.5°	27.4	27.0	27.0	27.4	27.7	28.5	29.6	30.7	33.7	36.6	41.1
85°	14.8	15.2	15.5	14.8	15.2	15.5	16.3	17.4	18.1	20.3	22.2
87.5°	5.2	6.3	5.9	5.9	6.3	6.3	6.3	7.0	7.0	7.0	8.1
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°	918.7	918.7	918.7	918.7	918.7	918.7	918.7	918.7	918.7	918.7	918.7
2.5°	947.9	946.8	943.9	937.9	933.9	926.5	925.0	924.6	918.0	908.0	907.2
5°	983.1	974.6	967.5	957.2	946.8	934.2	926.9	921.7	909.8	895.0	888.4
7.5°	1015.2	1003.0	988.6	972.3	957.2	939.4	926.5	916.1	898.7	879.9	868.4
10°	1041.1	1026.0	1007.8	986.0	965.3	942.0	923.9	908.4	885.4	862.1	846.6
12.5°	1058.9	1041.9	1021.2	995.6	970.5	943.9	917.6	898.0	869.2	842.2	822.2
15°	1078.9	1050.8	1029.3	1000.5	970.9	939.1	911.3	883.2	849.9	819.6	793.7
17.5°	1083.7	1057.8	1032.3	1000.5	969.8	930.9	898.7	867.7	830.7	793.3	768.2
20°	1088.1	1058.5	1027.1	992.7	960.5	920.6	884.3	848.1	805.2	764.9	733.4
22.5°	1084.8	1055.9	1020.8	982.0	947.2	906.1	866.9	827.0	778.9	736.7	701.2
25°	1075.2	1048.5	1012.3	969.8	928.0	886.2	845.1	802.6	750.4	701.6	662.4
27.5°	1055.6	1031.9	997.1	952.0	908.0	861.8	818.9	774.5	718.6	668.7	626.9
30°	1029.3	1010.4	975.3	930.2	882.5	832.9	788.9	743.8	685.7	631.3	587.0
32.5°	993.1	979.7	949.4	905.4	854.0	801.5	756.3	710.5	648.4	596.6	551.5
35°	952.4	946.1	919.1	875.1	821.8	766.7	718.3	671.3	614.0	559.2	515.9
37.5°	904.7	909.1	884.7	841.0	785.9	729.7	678.7	633.2	575.1	522.6	480.1
40°	857.3	864.0	845.5	804.8	747.5	689.4	637.6	588.8	534.8	488.6	446.4
42.5°	804.8	818.1	803.7	764.1	708.3	646.9	592.9	547.4	496.0	453.4	416.5
45°	749.0	766.0	760.0	719.7	664.6	604.3	547.4	500.0	458.6	420.9	387.2
47.5°	692.4	712.0	709.4	675.7	622.8	561.1	504.8	458.2	420.2	389.8	361.7
50°	634.3	654.3	654.6	624.7	575.5	516.7	456.4	414.2	383.9	357.3	334.3
52.5°	577.7	597.7	598.1	574.8	525.6	468.2	412.8	374.3	348.4	327.7	308.5
55°	518.5	541.8	544.1	521.5	477.9	422.7	371.7	335.1	312.2	298.8	282.2
57.5°	458.6	483.8	488.2	470.1	427.9	376.5	333.6	298.5	280.0	270.7	258.2
60°	402.8	427.6	434.6	413.9	379.1	335.1	294.0	264.4	249.7	242.3	233.4
62.5°	351.4	376.1	379.8	362.1	327.7	290.7	259.6	232.6	220.4	214.9	207.9
65°	301.1	323.3	328.1	312.2	281.1	250.4	223.0	203.4	192.7	187.9	183.4
67.5°	254.8	275.5	278.9	264.4	238.6	212.3	192.3	175.3	167.9	161.6	159.8
70°	211.2	230.0	233.0	218.6	198.2	176.8	160.1	148.3	141.3	137.6	135.0
72.5°	170.9	185.7	188.3	179.4	163.5	144.6	131.7	121.7	117.2	113.9	112.8
75°	133.5	147.9	148.3	140.5	127.6	114.7	104.7	99.5	94.3	91.0	90.2
77.5°	102.4	110.6	111.7	107.6	95.1	86.9	79.1	75.5	73.6	70.3	70.3
80°	73.2	78.0	79.9	74.0	68.1	61.0	57.0	54.0	52.5	50.3	50.3
82.5°	45.5	49.6	51.8	47.3	44.4	40.7	37.7	35.9	34.8	33.7	33.3
85°	24.8	27.7	27.7	26.3	23.7	21.8	20.7	20.0	19.6	19.2	18.9
87.5°	8.9	11.1	10.0	10.4	9.2	8.9	8.5	8.5	8.9	8.1	8.1
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°	918.7	918.7	918.7	918.7	918.7	918.7	918.7	918.7	918.7	918.7	918.7
2.5°	902.4	900.6	895.0	889.9	885.8	876.9	875.1	875.8	875.8	876.2	872.1
5°	880.6	872.9	864.0	855.8	849.6	839.6	834.0	832.5	831.4	829.2	825.1
7.5°	855.8	847.0	834.4	827.0	813.7	802.6	794.8	789.6	786.3	781.5	774.8
10°	830.7	817.7	803.7	788.9	775.6	760.8	748.6	742.7	735.6	730.8	723.4
12.5°	805.5	787.4	768.2	751.2	733.0	715.7	703.1	695.0	682.4	675.4	667.6
15°	772.6	750.4	734.2	704.6	695.7	670.5	655.4	649.1	636.9	634.7	622.5
17.5°	741.6	716.0	692.0	667.2	643.5	626.2	613.2	605.1	595.5	589.5	581.4
20°	702.7	676.1	647.2	621.4	601.4	582.9	574.8	564.4	558.8	552.9	547.0
22.5°	665.7	633.2	604.3	583.3	562.9	547.8	538.9	531.8	527.0	521.1	517.1
25°	626.2	595.8	569.2	547.4	527.8	515.9	508.5	504.5	501.5	497.1	494.5
27.5°	588.4	557.7	531.5	514.8	498.9	488.6	484.9	481.2	477.5	476.0	475.6
30°	548.1	520.0	498.6	484.1	469.7	464.2	462.3	458.6	459.4	459.7	458.6
32.5°	514.1	486.7	470.5	458.2	447.2	443.1	442.7	441.2	441.6	443.5	442.7
35°	479.0	458.6	442.3	432.4	425.3	422.4	422.7	423.1	425.3	425.7	427.2
37.5°	449.0	429.4	418.7	409.1	405.7	405.7	406.1	406.5	408.3	410.5	411.3
40°	419.4	403.5	394.3	388.0	386.1	386.1	387.6	389.5	390.6	392.8	393.2
42.5°	392.8	379.5	372.4	366.2	366.9	368.7	369.1	370.2	373.2	373.6	374.3
45°	366.5	356.5	349.5	347.7	347.7	349.1	351.0	351.7	353.9	354.3	355.1
47.5°	344.0	333.6	328.4	326.6	327.7	329.5	332.1	333.2	335.1	334.7	336.6
50°	318.8	310.3	306.2	305.5	306.2	309.6	310.7	313.3	315.1	316.2	317.0
52.5°	294.8	288.1	286.3	285.9	287.4	289.6	291.1	293.7	295.9	295.9	295.5
55°	271.8	265.9	263.7	265.6	267.4	268.5	271.5	273.0	275.2	275.5	275.2
57.5°	248.5	243.4	242.6	243.4	247.1	249.3	251.1	251.1	252.2	252.6	253.7
60°	224.5	221.2	220.4	222.3	226.4	227.8	228.9	229.3	230.8	230.0	232.3
62.5°	201.9	198.6	200.1	201.9	203.4	205.6	206.4	208.2	207.9	208.6	209.7
65°	178.6	176.8	177.2	179.4	181.2	184.2	184.2	184.2	186.0	186.0	186.8
67.5°	156.1	155.0	156.4	158.3	158.7	160.5	160.1	162.4	163.8	164.6	165.3
70°	134.3	133.5	133.5	135.4	137.2	138.0	138.7	140.2	140.5	141.7	143.5
72.5°	113.5	111.3	111.7	114.3	114.3	115.8	117.6	117.6	119.8	120.2	122.1
75°	91.0	90.2	91.0	92.5	94.3	93.9	96.2	95.8	96.5	99.1	99.5
77.5°	71.0	69.9	71.8	72.5	72.9	73.2	74.0	75.8	77.3	78.4	78.8
80°	51.0	50.7	52.5	53.3	52.9	53.6	54.7	56.6	56.6	57.3	58.4
82.5°	34.4	33.7	34.8	35.9	36.6	37.0	37.0	37.7	38.1	38.8	38.8
85°	19.6	19.6	20.3	20.7	21.5	21.1	21.8	21.5	22.2	22.9	22.6
87.5°	8.5	8.5	8.5	8.5	8.9	8.9	9.2	9.2	8.9	9.2	8.5
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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CATALOG NUMBER: S121DR-H685D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	918.7	918.7	918.7	918.7
2.5°	870.6	871.4	869.5	867.7
5°	824.8	822.2	819.6	818.9
7.5°	773.4	773.4	767.1	768.6
10°	718.3	716.0	711.2	711.6
12.5°	664.6	662.8	660.2	659.1
15°	616.2	617.3	619.1	608.8
17.5°	578.1	575.1	573.6	571.8
20°	544.1	542.6	539.6	539.2
22.5°	517.8	514.5	513.7	514.1
25°	492.6	492.6	492.6	490.4
27.5°	474.9	474.9	473.8	474.2
30°	459.4	460.1	459.0	459.4
32.5°	444.6	444.9	444.2	443.8
35°	427.9	429.0	428.7	429.0
37.5°	412.0	412.8	412.0	412.0
40°	393.9	395.7	395.4	394.3
42.5°	375.8	375.8	376.9	376.5
45°	356.9	356.2	356.2	357.3
47.5°	336.9	338.4	337.7	338.0
50°	318.4	318.1	317.0	316.6
52.5°	296.6	297.4	297.0	295.1
55°	275.5	275.5	275.2	275.2
57.5°	253.0	254.1	253.7	253.7
60°	231.5	232.3	232.6	232.3
62.5°	209.7	210.1	209.7	210.1
65°	188.6	188.6	188.3	189.4
67.5°	165.7	166.1	165.7	166.4
70°	143.9	144.6	145.0	144.2
72.5°	123.2	122.4	122.8	122.1
75°	100.2	100.6	100.2	100.6
77.5°	78.8	79.1	78.8	79.1
80°	58.1	58.1	58.4	57.7
82.5°	39.2	39.2	40.3	39.2
85°	22.9	22.9	22.2	23.7
87.5°	8.9	8.9	8.9	8.9
90°	0.0	0.0	0.0	0.0

(END OF REPORT)