

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: P243077

Luminaire Tested: **S121RDR-H685D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243077
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-67)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121RDR-H685D927-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED 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: 1729.1 lumens
Efficiency: N/A
Efficacy: 73.3 lumens/watt
Spacing Criteria (0/90/45): 0.89 / 1.21 / 1.07
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

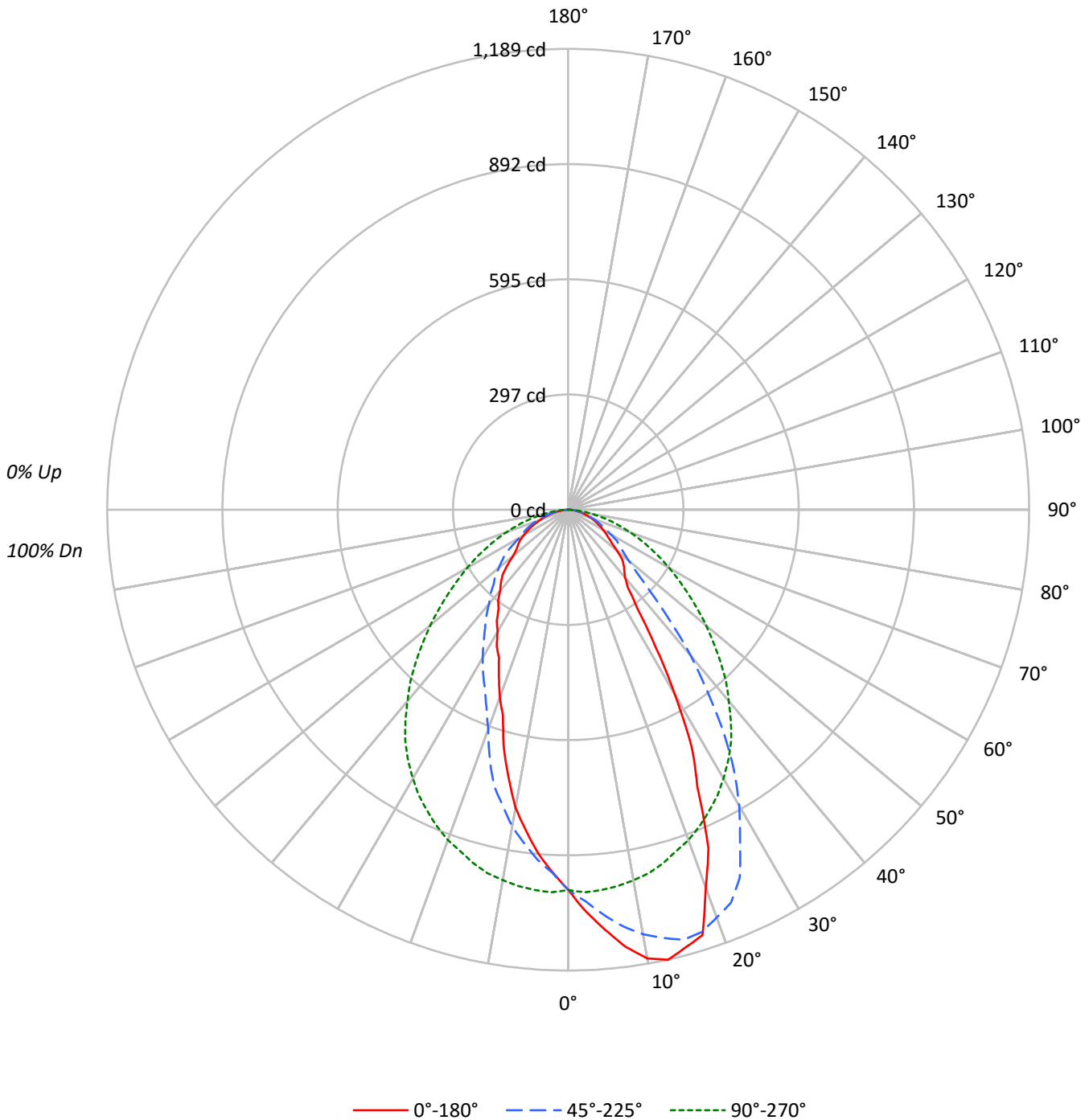
Input Watts (W): 23.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P243077

CATALOG NUMBER: S121RDR-H685D927-X4F0-XX-UDD-A-W

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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	29061	29061	29061
5°	32339	29294	26465
10°	35364	29208	23501
15°	35871	28963	19626
20°	32698	28596	16232
25°	25755	28077	13809
30°	18828	27395	12450
35°	11238	26488	11318
40°	8811	24921	10555
45°	8494	23260	10044
50°	7569	21398	8523
55°	6612	19470	8141
60°	6181	17819	7887
65°	5756	16209	7312
70°	5449	14606	6662
75°	4991	12994	5930
80°	4539	10545	5170
85°	4284	8057	3774



TEST NUMBER: P243077

CATALOG NUMBER: S121RDR-H685D927-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	93.6	5.4
10°-20°	261.2	15.1
20°-30°	347.3	20.1
30°-40°	331.3	19.2
40°-50°	274.9	15.9
50°-60°	204.5	11.8
60°-70°	132.4	7.7
70°-80°	67.4	3.9
80°-90°	16.5	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°	702.2	40.6
0°-40°	1033.5	59.8
0°-60°	1512.9	87.5
0°-90°	1729.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1729.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	981	981	981	981	981	
5°	1087	1049	985	906	890	107
15°	1169	1149	944	738	640	325
25°	788	1047	859	508	422	366
35°	311	696	732	373	313	212
45°	203	300	555	272	240	155
55°	128	162	377	196	158	116
65°	82	93	231	118	104	82
75°	44	48	114	59	52	46
85°	13	12	24	13	11	14
90°	0	0	0	0	0	



TEST NUMBER: P243077

CATALOG NUMBER: S121RDR-H685D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8
2.5°	1037.0	1034.5	1037.4	1036.3	1031.5	1032.6	1026.7	1023.0	1014.1	1010.8	1010.8
5°	1087.3	1091.0	1088.8	1089.6	1084.8	1081.8	1075.5	1068.5	1057.4	1049.2	1046.3
7.5°	1137.6	1138.8	1139.9	1136.9	1131.4	1126.2	1117.3	1106.9	1094.7	1084.4	1076.2
10°	1175.4	1178.0	1176.5	1172.0	1168.0	1160.2	1150.6	1139.5	1126.2	1112.5	1102.5
12.5°	1189.4	1191.6	1195.0	1192.4	1192.0	1188.3	1178.7	1165.0	1148.7	1131.7	1120.3
15°	1169.4	1168.0	1176.8	1174.6	1173.9	1172.4	1175.0	1172.0	1163.5	1148.7	1134.7
17.5°	1151.0	1150.2	1159.1	1161.3	1158.0	1153.2	1150.2	1146.5	1142.4	1142.8	1141.0
20°	1037.0	1059.6	1064.0	1075.9	1101.0	1117.7	1134.3	1133.6	1121.7	1119.9	1119.1
22.5°	945.3	953.8	949.8	969.0	982.7	1012.6	1041.9	1078.8	1103.6	1097.3	1093.3
25°	787.8	814.4	826.6	850.6	885.4	923.5	940.1	979.3	1017.4	1047.0	1069.6
27.5°	690.1	696.0	703.8	728.6	741.5	776.3	838.4	891.7	927.2	959.4	1018.9
30°	550.3	552.9	579.9	593.6	631.7	665.7	719.7	762.6	834.0	881.7	927.6
32.5°	420.1	417.9	447.5	463.4	501.1	547.0	607.3	647.2	717.1	795.2	849.9
35°	310.7	310.3	326.2	337.3	378.7	413.9	490.4	542.6	619.1	695.7	766.3
37.5°	253.0	252.6	255.9	265.5	282.9	322.5	359.5	436.8	511.5	586.9	675.3
40°	227.8	229.7	230.4	234.9	240.8	252.6	275.2	329.2	402.4	492.3	581.0
42.5°	214.5	214.5	215.2	216.4	219.3	222.6	236.3	257.0	315.8	387.6	487.1
45°	202.7	203.0	203.8	204.5	203.8	205.6	211.9	220.4	243.4	299.9	396.1
47.5°	188.6	188.3	190.1	191.2	192.7	194.9	195.3	199.7	209.7	239.3	309.2
50°	164.2	164.6	166.4	170.9	175.7	179.7	182.3	185.3	188.6	202.7	239.7
52.5°	142.0	142.4	143.5	146.8	151.3	156.4	164.6	171.2	173.8	178.3	199.0
55°	128.0	128.0	129.4	131.3	132.4	136.1	141.7	149.0	158.7	162.4	171.2
57.5°	116.1	116.1	116.9	116.9	118.4	120.2	123.9	127.6	135.7	147.6	153.1
60°	104.3	104.3	105.0	105.0	106.9	107.6	110.2	112.4	116.9	125.0	136.1
62.5°	93.2	92.5	93.2	93.6	94.7	95.8	97.6	100.2	102.8	107.6	115.8
65°	82.1	81.7	82.5	83.2	84.0	85.4	86.5	88.4	90.6	93.2	97.3
67.5°	72.5	72.1	72.5	73.6	73.2	74.0	75.8	76.6	78.8	81.4	84.7
70°	62.9	62.1	62.9	62.9	63.2	64.4	64.4	66.2	68.1	69.5	72.5
72.5°	52.5	52.9	52.5	52.9	53.6	54.0	54.7	55.8	57.0	58.4	60.3
75°	43.6	43.6	44.0	44.4	45.1	45.1	45.5	46.2	47.0	47.7	49.9
77.5°	34.8	35.1	35.5	35.9	35.9	36.2	36.6	37.0	38.1	38.5	39.6
80°	26.6	27.0	27.0	27.0	27.7	27.0	27.7	28.5	28.5	28.8	29.6
82.5°	19.2	19.6	19.2	19.6	20.0	20.0	19.6	20.0	20.0	20.7	20.7
85°	12.6	11.8	11.8	11.8	11.8	11.8	12.2	12.6	12.2	12.2	12.6
87.5°	5.2	5.2	5.2	5.2	5.5	5.2	5.5	5.5	5.5	5.2	5.5
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: P243077

CATALOG NUMBER: S121RDR-H685D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8
2.5°	1012.6	1009.7	1007.1	1002.6	997.1	989.0	987.9	988.2	978.2	968.6	967.1
5°	1040.0	1035.2	1027.1	1017.4	1008.6	994.9	989.0	984.9	969.7	956.8	951.6
7.5°	1069.2	1057.8	1046.7	1031.5	1016.7	998.9	987.9	979.3	959.4	942.4	933.5
10°	1092.2	1078.1	1062.2	1043.0	1022.6	1000.8	984.2	970.8	946.8	925.7	914.6
12.5°	1108.4	1092.5	1073.7	1050.7	1027.4	998.6	978.2	960.5	931.3	906.1	892.8
15°	1116.9	1099.9	1076.6	1051.5	1027.4	997.1	970.1	944.2	915.4	883.9	867.3
17.5°	1124.7	1102.5	1076.2	1047.4	1023.0	991.2	957.9	924.2	891.7	862.1	835.1
20°	1119.1	1100.3	1071.1	1041.1	1013.7	976.8	941.6	906.9	866.2	831.8	804.8
22.5°	1093.3	1089.9	1058.5	1026.3	994.9	959.4	918.7	884.3	840.7	800.0	767.4
25°	1062.9	1058.9	1041.9	1007.5	972.0	935.0	898.4	858.8	808.5	766.3	729.0
27.5°	1037.4	1028.2	1016.0	983.8	945.7	908.7	871.0	832.5	778.9	731.9	689.4
30°	985.6	994.5	980.8	958.6	914.6	878.7	842.5	800.7	747.5	693.5	649.8
32.5°	903.5	957.2	943.5	925.7	882.4	843.2	808.8	767.8	709.0	655.7	610.6
35°	831.0	877.3	908.3	886.9	848.8	803.3	768.2	732.3	670.9	616.5	573.3
37.5°	760.8	810.0	861.7	842.1	810.7	761.9	724.9	689.4	632.4	577.7	534.4
40°	668.7	740.4	790.4	798.1	765.9	716.8	680.9	644.3	594.0	539.6	493.4
42.5°	580.3	672.4	712.7	752.6	719.7	673.5	633.5	602.5	554.0	506.3	456.0
45°	487.8	592.5	652.0	682.7	670.9	628.7	585.1	555.1	514.5	470.1	422.4
47.5°	407.6	507.1	592.1	609.5	621.0	579.5	538.9	508.5	473.4	436.8	391.3
50°	323.2	426.4	517.4	548.8	570.7	532.9	490.4	464.2	434.6	401.7	361.3
52.5°	251.5	348.0	443.4	497.1	504.5	484.9	445.7	419.8	396.1	366.5	329.9
55°	199.7	274.4	369.8	432.3	439.4	434.6	399.4	376.9	359.5	334.7	304.0
57.5°	165.7	213.4	299.6	371.7	382.0	386.5	357.6	337.3	321.8	302.2	274.4
60°	143.1	168.3	234.1	304.8	333.2	341.0	315.5	300.7	287.7	270.0	244.1
62.5°	126.5	138.0	179.0	247.1	283.7	290.3	277.4	266.3	255.6	238.5	215.6
65°	105.4	117.6	138.0	190.8	236.0	239.3	241.9	231.2	222.6	208.6	188.3
67.5°	88.4	98.0	111.3	146.5	189.4	199.0	205.6	200.8	192.7	178.6	161.3
70°	75.1	80.6	90.2	109.8	144.6	165.3	172.3	168.6	164.6	149.4	134.6
72.5°	62.5	66.9	72.5	84.3	109.1	131.3	141.7	139.8	135.4	123.9	111.7
75°	51.8	53.6	58.1	64.7	79.1	99.9	112.1	113.5	108.4	97.6	88.0
77.5°	40.7	42.5	45.1	49.2	58.4	72.5	82.5	86.2	82.8	75.1	65.5
80°	31.1	32.2	34.0	35.9	39.6	49.2	59.5	61.8	59.9	53.6	47.7
82.5°	20.7	21.5	22.9	24.4	26.3	30.7	39.6	41.1	40.7	35.1	31.1
85°	12.6	12.6	12.9	14.1	14.8	16.6	21.5	23.7	22.6	18.9	17.0
87.5°	5.2	5.5	5.2	5.2	5.2	5.5	7.0	9.6	7.4	5.5	5.2
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: P243077

CATALOG NUMBER: S121RDR-H685D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8
2.5°	963.1	961.6	956.0	950.9	945.0	937.9	938.3	939.4	936.8	936.1	938.7
5°	944.2	939.0	930.5	922.0	915.4	906.5	901.3	903.9	902.1	898.7	896.5
7.5°	924.2	916.8	904.6	893.9	885.0	868.4	864.7	860.3	856.6	849.2	847.7
10°	900.6	889.8	874.3	859.1	842.9	829.9	817.7	812.5	802.6	795.9	794.1
12.5°	876.2	858.4	841.0	818.8	800.3	781.5	770.8	763.4	753.4	737.1	729.3
15°	851.0	824.0	800.7	776.3	763.7	738.2	717.9	694.9	682.7	655.4	639.5
17.5°	817.4	786.3	754.9	734.9	708.6	673.1	639.1	627.3	608.8	591.0	573.3
20°	771.9	743.4	713.4	683.5	643.5	602.5	589.5	569.2	548.8	538.1	528.9
22.5°	730.1	699.4	663.9	624.3	583.2	551.1	534.1	519.3	506.7	497.1	486.3
25°	690.5	658.7	608.0	567.7	531.8	508.2	499.7	480.4	467.1	460.1	450.8
27.5°	646.9	603.2	562.5	520.7	488.9	475.6	456.0	440.9	426.8	413.1	409.8
30°	605.4	557.0	516.7	482.6	459.3	440.9	420.9	403.1	393.9	388.7	380.2
32.5°	564.4	515.2	477.5	450.8	425.7	406.1	387.2	378.0	363.9	352.5	345.1
35°	520.4	477.5	447.5	416.4	392.4	373.2	363.6	342.5	334.7	331.4	323.6
37.5°	481.5	443.4	413.1	389.4	363.2	347.7	328.8	324.0	313.6	304.8	302.2
40°	449.4	413.5	385.0	354.3	338.0	317.7	308.5	295.5	291.8	288.5	282.6
42.5°	414.2	383.5	351.0	330.3	306.2	297.0	282.6	278.9	270.0	266.7	264.4
45°	384.3	355.8	324.7	299.6	285.9	272.2	266.7	257.4	253.3	249.3	245.2
47.5°	355.1	325.5	300.7	277.0	261.8	255.6	245.6	238.9	234.5	230.4	226.3
50°	328.1	298.1	270.4	253.3	242.6	233.7	227.5	221.9	215.6	206.7	197.5
52.5°	298.8	271.8	249.3	232.6	223.0	214.5	209.0	199.3	187.1	177.5	173.1
55°	269.6	244.1	224.5	211.2	204.5	196.4	183.8	169.8	162.0	160.5	159.4
57.5°	244.8	220.8	202.7	192.3	184.6	170.1	156.8	151.6	149.4	148.7	147.9
60°	217.1	195.6	182.7	171.6	158.7	145.0	140.9	140.2	138.0	136.8	136.1
62.5°	191.6	173.1	161.3	147.9	134.3	131.7	128.7	126.9	125.7	123.2	122.0
65°	166.8	152.0	139.1	125.0	120.2	118.4	115.8	113.2	110.2	108.4	106.9
67.5°	143.1	128.7	115.0	109.8	107.3	104.3	101.0	97.3	95.8	93.2	92.8
70°	119.8	106.5	99.1	95.8	91.0	88.4	84.7	83.2	80.6	79.5	78.4
72.5°	97.6	88.0	85.1	80.3	76.9	72.9	71.0	69.5	68.1	66.2	66.2
75°	76.2	73.6	68.1	64.4	61.0	58.8	58.1	55.5	55.1	54.0	53.3
77.5°	60.7	55.5	53.6	49.6	47.3	46.2	45.5	44.0	42.5	42.2	41.8
80°	42.9	40.3	38.1	36.2	34.4	33.7	32.9	32.5	31.8	31.1	30.7
82.5°	28.1	26.6	25.1	24.0	23.7	22.6	21.8	21.5	20.7	20.7	20.7
85°	15.2	14.8	14.1	13.3	12.6	12.6	12.2	11.8	11.8	10.7	10.7
87.5°	4.8	4.8	4.4	4.4	3.7	4.1	3.7	3.7	3.3	3.7	3.7
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: P243077

CATALOG NUMBER: S121RDR-H685D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	980.8	980.8	980.8	980.8
2.5°	935.7	935.7	934.2	935.7
5°	895.0	891.7	890.6	889.8
7.5°	843.2	840.3	837.3	834.4
10°	790.4	785.9	783.3	781.1
12.5°	721.6	716.0	705.7	708.6
15°	636.9	637.2	613.2	639.8
17.5°	567.7	569.6	559.9	558.5
20°	523.7	523.0	519.3	514.8
22.5°	478.6	475.2	473.8	466.7
25°	436.4	430.5	432.3	422.4
27.5°	405.7	400.9	399.4	398.7
30°	375.0	365.0	361.7	363.9
32.5°	344.0	343.2	342.1	342.5
35°	317.7	316.2	312.9	312.9
37.5°	299.6	299.9	298.1	296.6
40°	277.4	275.5	275.2	272.9
42.5°	261.5	257.8	256.3	256.7
45°	243.0	240.8	238.9	239.7
47.5°	221.2	218.9	214.9	213.8
50°	191.6	188.6	186.8	184.9
52.5°	169.4	169.0	168.3	167.9
55°	158.7	157.6	157.6	157.6
57.5°	147.6	146.8	146.5	147.2
60°	135.4	134.6	133.1	133.1
62.5°	120.2	119.5	119.1	117.6
65°	105.0	104.7	103.9	104.3
67.5°	91.0	90.6	90.6	89.5
70°	77.3	77.3	76.2	76.9
72.5°	64.7	64.4	64.4	64.4
75°	52.5	52.1	51.8	51.8
77.5°	41.4	41.4	40.7	40.7
80°	30.0	30.0	29.6	30.3
82.5°	20.0	20.7	20.0	20.0
85°	10.7	11.1	11.1	11.1
87.5°	3.3	3.0	3.0	3.0
90°	0.0	0.0	0.0	0.0

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