

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: P242246

Luminaire Tested: **S121RDR-S490D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242246  
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-S490D940-X4F0-XX-UDD-A-W  
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 4000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1542.9 lumens  
Efficiency: N/A  
Efficacy: 82.1 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

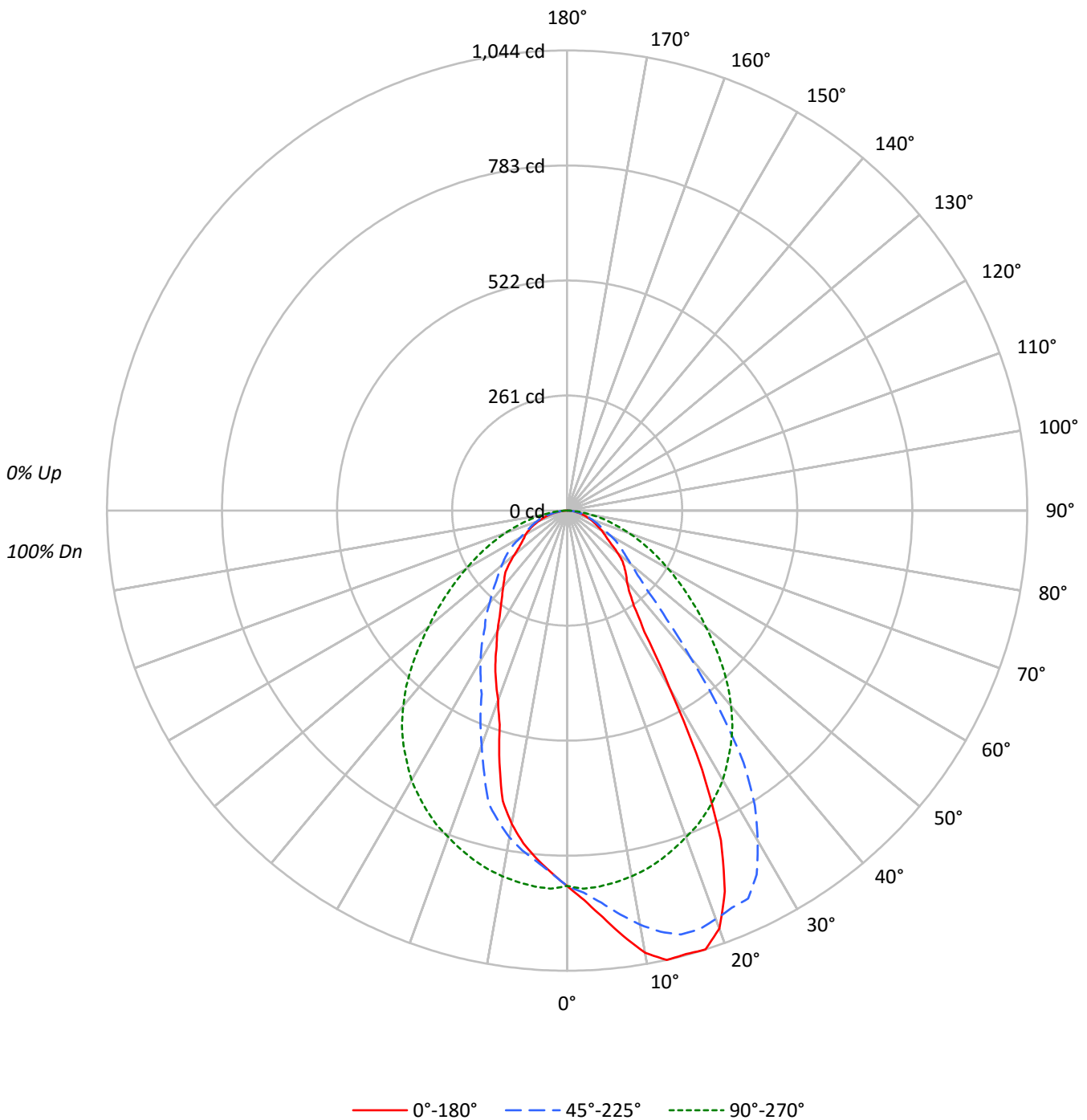
Input Watts (W): 18.8  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P242246

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### Luminous Intensity Polar Plot





TEST NUMBER: P242246

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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	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°	25233	25233	25233
5°	27539	25454	23577
10°	30649	25351	21732
15°	31957	25160	18187
20°	31818	24862	14435
25°	26985	24585	12603
30°	15882	24165	10822
35°	9542	23428	9448
40°	8173	22364	8718
45°	7727	20847	8293
50°	6905	18936	7172
55°	5755	17285	6483
60°	5351	15745	6453
65°	4936	14344	6240
70°	4661	12925	5882
75°	4396	11437	5346
80°	3942	9555	4692
85°	3706	7513	3706



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	81.6	5.3
10°-20°	232.6	15.1
20°-30°	317.7	20.6
30°-40°	296.0	19.2
40°-50°	244.7	15.9
50°-60°	180.4	11.7
60°-70°	115.4	7.5
70°-80°	59.3	3.8
80°-90°	15.3	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°	631.9	41.0
0°-40°	927.9	60.1
0°-60°	1353.0	87.7
0°-90°	1542.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1542.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	852	852	852	852	852	
5°	926	893	856	799	793	91
15°	1042	996	820	688	593	294
25°	825	971	752	459	386	358
35°	264	698	648	326	261	179
45°	184	260	498	228	198	141
55°	111	149	335	163	126	103
65°	70	81	205	95	89	70
75°	38	42	100	52	47	40
85°	11	11	22	12	11	12
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°	851.6	851.6	851.6	851.6	851.6	851.6	851.6	851.6	851.6	851.6	851.6
2.5°	884.3	883.6	884.6	883.9	883.3	881.7	880.4	876.6	870.8	867.6	870.8
5°	925.9	928.4	927.5	926.2	923.3	920.8	915.0	911.5	901.2	893.2	895.5
7.5°	973.3	976.5	972.3	969.4	967.8	960.5	954.1	944.1	932.9	924.0	918.8
10°	1018.7	1019.7	1018.4	1015.8	1010.4	1002.4	993.1	981.9	967.8	954.1	944.8
12.5°	1044.3	1045.9	1047.9	1043.4	1039.2	1032.8	1023.2	1012.0	994.7	978.7	968.1
15°	1041.8	1043.1	1046.6	1045.0	1043.1	1040.2	1034.7	1025.5	1013.3	995.7	980.6
17.5°	1043.7	1044.7	1046.3	1040.5	1037.3	1033.8	1026.7	1020.3	1010.1	996.3	985.1
20°	1009.1	1024.8	1022.9	1030.6	1033.8	1033.5	1026.7	1014.6	1000.5	986.4	981.3
22.5°	934.8	947.3	948.9	960.8	975.5	987.4	1002.1	1007.5	996.6	975.5	968.5
25°	825.4	834.3	843.3	860.3	875.9	908.9	939.0	961.7	974.2	971.3	957.6
27.5°	663.4	653.8	689.3	708.8	752.7	800.7	843.0	884.6	904.4	931.0	944.5
30°	464.2	463.3	490.2	524.1	589.7	633.9	713.0	779.9	832.1	864.7	901.2
32.5°	325.9	330.7	350.6	371.4	407.6	479.6	540.1	632.3	721.3	792.7	837.5
35°	263.8	264.4	268.9	281.4	303.5	343.5	390.6	480.2	600.9	697.9	764.8
37.5°	231.2	233.1	234.4	241.4	249.4	266.4	296.1	358.3	458.1	566.4	682.6
40°	211.3	212.9	214.2	216.4	221.2	229.2	248.8	278.5	336.2	435.7	565.1
42.5°	197.9	197.2	200.1	201.1	203.6	208.1	216.7	232.8	266.0	333.6	445.0
45°	184.4	185.4	185.4	186.6	188.9	191.5	195.0	204.9	221.9	260.3	347.7
47.5°	170.3	170.0	171.9	172.9	175.1	177.4	179.9	185.0	195.0	217.4	268.0
50°	149.8	150.5	154.0	157.2	160.4	163.3	166.5	169.7	176.1	188.3	219.3
52.5°	128.1	128.1	131.9	134.1	138.6	145.7	151.1	155.9	160.1	166.2	184.7
55°	111.4	111.7	113.0	114.9	118.1	121.7	128.7	137.0	144.1	149.2	159.4
57.5°	99.9	100.2	100.5	102.1	103.7	105.0	109.2	115.6	124.9	134.1	140.2
60°	90.3	90.0	90.0	90.9	92.2	93.8	96.0	98.6	103.7	113.7	124.5
62.5°	79.4	80.0	80.0	81.0	82.0	83.6	84.5	87.1	90.0	94.4	105.7
65°	70.4	71.1	70.4	71.4	72.0	73.0	74.6	75.9	78.4	81.3	85.8
67.5°	61.5	61.8	62.4	62.8	63.4	63.7	65.0	66.6	68.2	70.1	73.6
70°	53.8	53.8	53.8	54.4	55.1	55.1	56.0	56.7	58.3	60.2	62.1
72.5°	45.5	45.8	45.8	45.5	46.7	47.1	47.4	48.0	49.3	50.9	52.5
75°	38.4	37.8	37.8	38.1	39.1	39.1	39.4	39.7	40.7	41.9	42.9
77.5°	30.1	30.1	30.4	30.7	31.1	31.1	31.7	31.7	33.0	33.6	34.3
80°	23.1	23.7	24.0	23.7	23.7	24.0	24.0	24.7	25.0	25.3	25.9
82.5°	17.3	17.6	17.0	17.0	17.3	17.3	17.6	17.6	17.9	18.2	18.2
85°	10.9	10.9	11.2	10.9	11.2	10.9	10.9	11.5	11.2	11.2	11.5
87.5°	5.1	5.4	5.1	5.4	5.1	5.4	5.4	5.4	5.4	5.4	5.1
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°	851.6	851.6	851.6	851.6	851.6	851.6	851.6	851.6	851.6	851.6	851.6
2.5°	869.9	869.5	867.9	864.4	861.9	857.1	857.1	858.7	850.3	844.6	844.2
5°	890.0	886.8	881.4	874.7	868.6	860.3	857.1	855.8	844.6	835.9	833.0
7.5°	911.5	903.5	894.2	883.3	873.1	861.2	855.1	850.3	835.9	825.4	819.0
10°	933.9	921.1	906.7	891.0	876.9	860.9	851.0	842.6	826.0	811.3	803.9
12.5°	953.7	935.8	917.6	897.1	877.9	857.7	843.9	833.0	813.5	795.9	786.9
15°	963.0	943.8	928.8	900.6	874.7	854.2	836.6	820.2	799.4	779.9	766.1
17.5°	971.0	949.9	930.0	903.5	873.4	846.8	825.7	804.9	782.5	762.0	745.0
20°	968.8	950.9	926.5	898.4	869.9	839.1	815.1	788.5	760.7	739.9	721.9
22.5°	956.0	941.3	916.0	889.1	861.5	828.6	801.3	772.5	738.3	715.5	695.4
25°	939.7	925.6	900.6	872.7	845.5	813.5	781.5	752.0	715.2	688.0	662.1
27.5°	926.8	905.7	880.7	849.7	823.4	793.0	759.4	729.6	689.9	659.8	629.7
30°	912.1	888.1	857.4	824.4	796.5	768.7	736.0	706.3	662.4	628.1	590.7
32.5°	869.9	870.2	833.7	796.9	767.1	737.3	708.2	676.5	632.9	592.6	554.2
35°	814.8	836.2	809.3	767.1	730.3	702.7	678.7	647.7	599.3	557.7	514.2
37.5°	741.2	778.9	782.1	738.3	697.6	665.3	641.6	615.7	567.0	522.2	479.0
40°	667.5	717.5	737.3	706.9	662.7	625.6	601.9	578.2	532.4	484.1	444.1
42.5°	577.2	658.2	682.9	673.9	626.5	586.5	561.5	540.1	495.6	448.2	408.5
45°	475.4	584.9	620.8	630.1	590.0	547.1	518.3	497.5	458.5	416.8	375.5
47.5°	381.9	502.3	561.5	571.2	550.0	508.4	475.4	453.7	422.6	386.7	345.8
50°	291.3	414.6	499.4	514.2	509.0	466.8	436.4	410.8	387.1	355.1	316.6
52.5°	231.8	331.4	432.2	459.7	461.3	428.0	396.0	372.7	349.6	324.3	289.4
55°	185.0	256.1	358.3	405.0	409.5	386.4	357.0	334.6	317.3	293.6	264.1
57.5°	155.9	198.2	286.9	349.9	351.8	345.4	317.3	298.7	284.3	263.8	237.9
60°	133.2	157.2	221.2	294.9	304.5	304.5	282.1	265.7	252.0	236.6	211.9
62.5°	115.3	128.4	167.8	234.4	259.0	262.8	248.8	234.4	224.1	208.7	186.0
65°	97.0	106.9	130.0	181.2	215.1	222.2	215.1	204.6	196.6	180.6	162.6
67.5°	79.7	89.3	103.7	137.3	174.5	183.1	181.8	176.4	168.1	156.2	137.3
70°	66.0	71.7	82.3	101.8	137.0	150.2	154.0	149.2	141.8	129.0	115.3
72.5°	54.4	58.9	64.0	78.1	102.4	119.7	126.1	123.6	118.1	106.0	94.4
75°	44.5	47.4	50.9	57.6	73.6	93.2	100.5	99.9	94.4	84.2	74.9
77.5°	35.9	36.8	39.4	43.5	51.5	69.2	74.9	76.8	72.7	64.0	56.7
80°	26.9	28.2	29.5	31.7	35.5	45.8	53.1	56.0	52.5	47.4	40.0
82.5°	18.9	19.2	20.5	21.8	23.7	27.9	35.5	38.7	35.5	30.1	27.9
85°	11.8	11.5	11.8	12.2	14.1	15.0	19.8	22.1	21.5	18.2	15.7
87.5°	5.4	5.4	5.1	5.4	5.1	6.1	7.0	10.2	7.7	6.7	6.1
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°	851.6	851.6	851.6	851.6	851.6	851.6	851.6	851.6	851.6	851.6	851.6
2.5°	841.7	840.7	837.5	833.0	829.2	822.8	822.8	824.4	824.1	824.7	824.1
5°	828.2	823.8	819.0	812.9	807.1	798.8	797.8	798.5	798.1	797.8	795.9
7.5°	810.9	805.8	799.7	792.1	785.7	777.7	775.4	774.8	772.2	771.3	768.7
10°	794.3	788.2	780.2	770.9	762.3	753.0	747.2	744.0	739.9	735.4	731.6
12.5°	775.7	767.7	757.5	746.3	731.9	721.6	713.0	707.5	701.8	694.1	688.7
15°	755.9	739.6	727.4	709.1	691.5	688.0	674.9	657.6	656.3	618.9	605.7
17.5°	729.3	715.9	693.1	669.4	645.4	625.9	626.2	579.5	565.1	564.8	541.7
20°	701.8	683.2	657.0	632.9	607.7	567.3	535.3	519.9	496.6	487.6	474.5
22.5°	669.4	645.1	614.4	581.7	546.5	513.8	482.5	467.7	455.9	446.0	440.5
25°	631.0	606.4	569.6	528.9	489.5	459.1	441.8	435.1	414.9	407.9	401.2
27.5°	592.3	565.4	517.4	478.3	446.0	425.2	407.2	396.0	386.4	368.5	360.5
30°	555.5	512.2	472.5	436.7	412.4	392.8	379.7	357.0	343.5	335.2	331.7
32.5°	515.4	469.3	433.5	402.4	377.5	360.5	341.0	325.6	319.5	308.6	292.9
35°	474.5	432.5	395.1	370.1	348.6	325.6	313.4	298.7	283.3	275.0	273.7
37.5°	434.8	395.1	368.2	341.9	316.0	302.5	284.6	268.9	263.5	255.8	247.5
40°	398.9	365.0	340.0	309.9	294.2	273.4	259.6	251.6	238.5	235.6	233.1
42.5°	369.5	340.3	312.1	285.3	267.0	250.4	238.2	228.9	224.7	217.7	215.5
45°	339.7	312.8	284.0	262.8	242.0	227.9	219.6	211.6	206.8	204.9	201.1
47.5°	312.8	286.5	260.0	234.0	219.9	210.7	201.4	197.2	194.3	190.2	187.9
50°	287.2	258.0	233.1	216.7	201.7	193.4	187.3	183.4	179.0	174.5	168.1
52.5°	261.2	236.3	212.3	195.0	183.8	178.3	172.6	168.4	159.4	150.8	145.3
55°	235.0	209.4	189.9	176.7	168.7	163.0	156.2	144.1	135.7	130.9	128.4
57.5°	211.3	188.3	171.0	160.1	154.3	144.7	132.9	125.2	121.0	119.1	117.8
60°	186.0	166.2	151.8	143.4	134.5	121.7	115.3	111.4	110.1	109.5	108.5
62.5°	164.2	146.6	135.4	126.1	113.3	106.6	103.1	101.2	101.2	100.2	99.6
65°	141.2	127.4	117.8	104.4	97.6	94.8	93.5	92.5	91.6	91.2	90.0
67.5°	122.3	110.1	97.6	90.6	86.4	84.8	83.6	83.2	82.0	81.0	80.0
70°	103.1	91.2	81.0	77.8	75.6	74.9	73.6	72.4	71.4	70.1	69.5
72.5°	83.9	72.7	69.2	67.6	65.3	64.4	62.8	61.8	60.2	59.5	58.9
75°	64.0	59.5	57.6	56.3	54.7	52.5	51.9	50.9	50.3	49.3	48.3
77.5°	50.9	48.3	46.1	44.5	43.2	41.6	40.3	40.0	39.4	38.4	38.1
80°	38.1	36.2	35.2	33.6	32.0	31.1	30.4	30.1	29.1	28.8	28.5
82.5°	26.3	24.7	24.0	22.1	21.5	21.5	21.1	20.5	19.8	19.5	19.2
85°	14.7	14.1	13.1	13.4	12.5	12.5	12.2	11.8	11.5	11.2	10.9
87.5°	5.8	5.4	5.1	4.8	4.8	3.8	3.8	3.8	4.2	3.8	3.5
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: P242246

CATALOG NUMBER: S121RDR-S490D940-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	851.6	851.6	851.6	851.6
2.5°	825.0	825.7	823.4	822.2
5°	795.9	794.9	793.7	792.7
7.5°	766.1	765.2	765.2	761.3
10°	730.0	727.4	725.5	722.3
12.5°	683.8	680.0	678.7	674.9
15°	596.8	588.8	583.3	592.9
17.5°	536.3	515.4	517.0	509.0
20°	474.1	465.8	470.0	457.8
22.5°	433.8	428.7	423.9	421.3
25°	396.4	390.3	382.9	385.5
27.5°	349.3	349.3	344.5	346.4
30°	325.3	322.7	314.7	316.3
32.5°	287.8	284.6	283.7	284.3
35°	269.9	264.8	263.2	261.2
37.5°	244.9	243.0	243.3	242.0
40°	228.3	226.7	224.7	225.4
42.5°	213.9	212.9	211.0	211.3
45°	199.8	198.8	197.9	197.9
47.5°	184.1	182.2	180.6	178.6
50°	163.6	159.8	156.9	155.6
52.5°	141.5	139.6	137.7	137.7
55°	127.4	126.5	125.8	125.5
57.5°	117.5	116.9	116.9	115.9
60°	108.5	108.5	108.2	108.9
62.5°	99.9	98.9	99.2	99.2
65°	90.0	89.6	89.3	89.0
67.5°	79.4	79.1	79.4	78.8
70°	68.8	68.8	68.5	67.9
72.5°	57.9	58.6	57.9	57.6
75°	47.7	47.4	47.7	46.7
77.5°	38.1	36.8	37.5	37.8
80°	28.2	28.2	27.9	27.5
82.5°	18.9	19.2	18.6	18.6
85°	10.9	10.9	10.2	10.9
87.5°	3.2	3.2	3.2	3.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)