

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: P242241

Luminaire Tested: **S121RDR-S490D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242241  
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-S490D935-X4F0-XX-UDD-A-W  
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

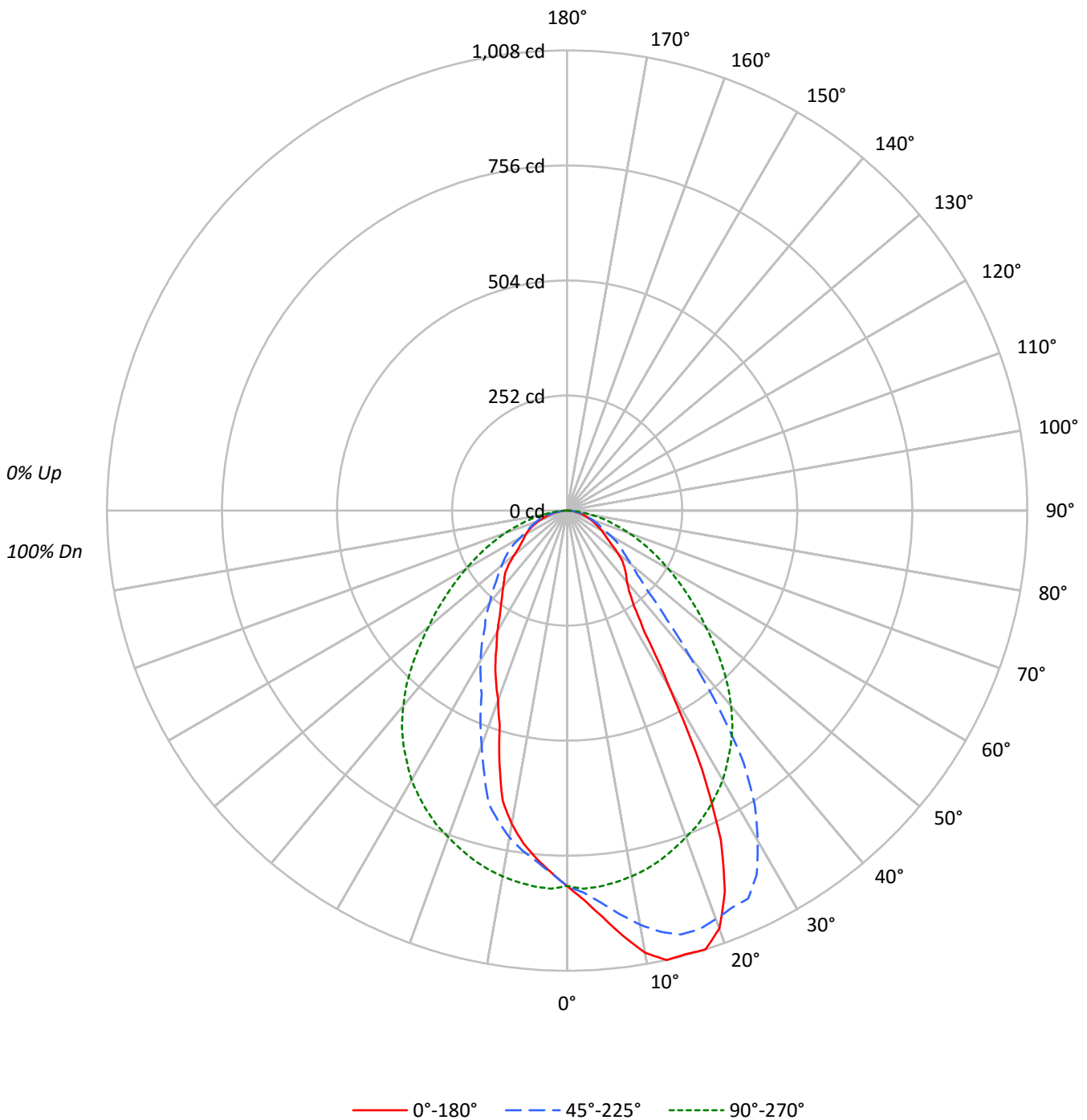
Lumens per Lamp: N/A  
Luminaire Lumens: 1489.8 lumens  
Efficiency: N/A  
Efficacy: 79.2 lumens/watt  
Spacing Criteria (0/90/45): 0.96 / 1.23 / 1.1  
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 18.8  
Input Voltage (V): 120  
Input Current (A<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: P242241

CATALOG NUMBER: S121RDR-S490D935-X4F0-XX-UDD-A-W

### Luminous Intensity Polar Plot





TEST NUMBER: P242241

CATALOG NUMBER: S121RDR-S490D935-X4F0-XX-UDD-A-W

**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°	24365	24365	24365
5°	26590	24577	22765
10°	29593	24479	20983
15°	30856	24295	17561
20°	30724	24008	13940
25°	26053	23738	12168
30°	15334	23330	10449
35°	9213	22621	9122
40°	7890	21594	8417
45°	7463	20130	8003
50°	6670	18282	6924
55°	5558	16685	6261
60°	5167	15206	6228
65°	4767	13847	6022
70°	4496	12484	5674
75°	4247	11036	5163
80°	3805	9231	4539
85°	3570	7241	3570



TEST NUMBER: P242241

CATALOG NUMBER: S121RDR-S490D935-X4F0-XX-UDD-A-W

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	78.8	5.3
10°-20°	224.6	15.1
20°-30°	306.7	20.6
30°-40°	285.8	19.2
40°-50°	236.3	15.9
50°-60°	174.2	11.7
60°-70°	111.4	7.5
70°-80°	57.3	3.8
80°-90°	14.7	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°	610.1	41.0
0°-40°	895.9	60.1
0°-60°	1306.4	87.7
0°-90°	1489.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1489.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	822	822	822	822	822	
5°	894	862	826	771	765	88
15°	1006	961	792	664	572	283
25°	797	938	726	443	372	346
35°	255	674	625	314	252	173
45°	178	251	480	220	191	136
55°	108	144	323	157	121	99
65°	68	78	198	92	86	68
75°	37	40	96	51	45	39
85°	10	11	21	12	10	12
90°	0	0	0	0	0	



TEST NUMBER: P242241

CATALOG NUMBER: S121RDR-S490D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	822.3	822.3	822.3	822.3	822.3	822.3	822.3	822.3	822.3	822.3	822.3
2.5°	853.8	853.2	854.1	853.5	852.9	851.3	850.1	846.4	840.8	837.7	840.8
5°	894.0	896.5	895.5	894.3	891.5	889.1	883.5	880.1	870.2	862.5	864.6
7.5°	939.7	942.8	938.8	936.0	934.5	927.4	921.2	911.6	900.8	892.1	887.2
10°	983.6	984.6	983.3	980.9	975.6	967.9	958.9	948.1	934.5	921.2	912.2
12.5°	1008.4	1009.9	1011.8	1007.4	1003.4	997.2	988.0	977.2	960.5	945.0	934.8
15°	1005.9	1007.1	1010.5	1009.0	1007.1	1004.4	999.1	990.1	978.4	961.4	946.9
17.5°	1007.8	1008.7	1010.2	1004.7	1001.6	998.2	991.4	985.2	975.3	962.0	951.2
20°	974.4	989.5	987.7	995.1	998.2	997.9	991.4	979.6	966.0	952.4	947.5
22.5°	902.7	914.7	916.3	927.7	941.9	953.3	967.6	972.8	962.3	941.9	935.1
25°	796.9	805.6	814.2	830.6	845.8	877.6	906.7	928.6	940.7	937.9	924.6
27.5°	640.5	631.2	665.6	684.4	726.8	773.1	813.9	854.1	873.3	898.9	911.9
30°	448.2	447.3	473.3	506.0	569.4	612.1	688.4	753.0	803.4	835.0	870.2
32.5°	314.7	319.3	338.5	358.6	393.5	463.1	521.5	610.5	696.5	765.4	808.7
35°	254.7	255.3	259.7	271.7	293.1	331.7	377.1	463.7	580.2	673.9	738.5
37.5°	223.2	225.0	226.3	233.1	240.8	257.2	285.9	345.9	442.4	546.8	659.1
40°	204.0	205.6	206.8	209.0	213.6	221.3	240.2	268.9	324.6	420.7	545.6
42.5°	191.0	190.4	193.2	194.1	196.6	200.9	209.3	224.7	256.9	322.1	429.7
45°	178.1	179.0	179.0	180.2	182.4	184.9	188.3	197.8	214.2	251.3	335.7
47.5°	164.5	164.1	166.0	166.9	169.1	171.3	173.7	178.7	188.3	209.9	258.7
50°	144.7	145.3	148.7	151.8	154.9	157.7	160.7	163.8	170.0	181.8	211.8
52.5°	123.7	123.7	127.4	129.5	133.9	140.7	145.9	150.5	154.6	160.4	178.4
55°	107.6	107.9	109.1	111.0	114.1	117.5	124.3	132.3	139.1	144.1	153.9
57.5°	96.4	96.8	97.1	98.6	100.2	101.4	105.4	111.6	120.6	129.5	135.4
60°	87.2	86.9	86.9	87.8	89.0	90.6	92.7	95.2	100.2	109.7	120.3
62.5°	76.7	77.3	77.3	78.2	79.1	80.7	81.6	84.1	86.9	91.2	102.0
65°	68.0	68.6	68.0	68.9	69.6	70.5	72.0	73.3	75.7	78.5	82.8
67.5°	59.4	59.7	60.3	60.6	61.2	61.5	62.8	64.3	65.8	67.7	71.1
70°	51.9	51.9	51.9	52.6	53.2	53.2	54.1	54.7	56.3	58.1	60.0
72.5°	43.9	44.2	44.2	43.9	45.1	45.4	45.8	46.4	47.6	49.2	50.7
75°	37.1	36.5	36.5	36.8	37.7	37.7	38.0	38.3	39.3	40.5	41.4
77.5°	29.1	29.1	29.4	29.7	30.0	30.0	30.6	30.6	31.8	32.5	33.1
80°	22.3	22.9	23.2	22.9	22.9	23.2	23.2	23.8	24.1	24.4	25.0
82.5°	16.7	17.0	16.4	16.4	16.7	16.7	17.0	17.0	17.3	17.6	17.6
85°	10.5	10.5	10.8	10.5	10.8	10.5	10.5	11.1	10.8	10.8	11.1
87.5°	4.9	5.3	4.9	5.3	4.9	5.3	5.3	5.3	5.3	5.3	4.9
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: P242241

CATALOG NUMBER: S121RDR-S490D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	822.3	822.3	822.3	822.3	822.3	822.3	822.3	822.3	822.3	822.3	822.3
2.5°	839.9	839.6	838.0	834.6	832.2	827.5	827.5	829.1	821.0	815.5	815.2
5°	859.4	856.3	851.0	844.5	838.7	830.6	827.5	826.3	815.5	807.1	804.3
7.5°	880.1	872.4	863.4	852.9	843.0	831.6	825.7	821.0	807.1	796.9	790.7
10°	901.7	889.4	875.4	860.3	846.7	831.2	821.7	813.6	797.5	783.3	776.2
12.5°	920.9	903.6	886.0	866.2	847.6	828.2	814.9	804.3	785.5	768.5	759.8
15°	929.9	911.3	896.8	869.6	844.5	824.8	807.8	792.0	771.9	753.0	739.7
17.5°	937.6	917.2	898.0	872.4	843.3	817.6	797.2	777.1	755.5	735.7	719.3
20°	935.4	918.1	894.6	867.4	839.9	810.2	787.0	761.4	734.5	714.4	697.1
22.5°	923.1	908.8	884.4	858.4	831.9	800.0	773.7	745.9	712.8	690.9	671.4
25°	907.3	893.7	869.6	842.7	816.4	785.5	754.6	726.1	690.6	664.3	639.3
27.5°	894.9	874.5	850.4	820.4	795.1	765.7	733.3	704.5	666.2	637.1	608.1
30°	880.7	857.5	827.8	796.0	769.1	742.2	710.7	681.9	639.6	606.5	570.3
32.5°	839.9	840.2	805.0	769.4	740.7	711.9	683.8	653.2	611.1	572.2	535.1
35°	786.7	807.4	781.5	740.7	705.1	678.5	655.4	625.4	578.7	538.5	496.5
37.5°	715.6	752.1	755.2	712.8	673.6	642.4	619.5	594.5	547.5	504.2	462.5
40°	644.5	692.8	711.9	682.6	639.9	604.0	581.2	558.3	514.1	467.4	428.8
42.5°	557.4	635.6	659.4	650.7	605.0	566.3	542.2	521.5	478.5	432.8	394.4
45°	459.1	564.8	599.4	608.4	569.7	528.3	500.5	480.4	442.7	402.5	362.6
47.5°	368.8	485.0	542.2	551.5	531.1	490.9	459.1	438.0	408.0	373.4	333.9
50°	281.3	400.3	482.2	496.5	491.5	450.7	421.3	396.6	373.7	342.8	305.7
52.5°	223.8	319.9	417.3	443.9	445.5	413.3	382.4	359.8	337.6	313.1	279.5
55°	178.7	247.3	345.9	391.0	395.4	373.1	344.7	323.0	306.3	283.5	255.0
57.5°	150.5	191.3	277.0	337.9	339.7	333.5	306.3	288.4	274.5	254.7	229.7
60°	128.6	151.8	213.6	284.7	294.0	294.0	272.3	256.6	243.3	228.4	204.6
62.5°	111.3	124.0	162.0	226.3	250.1	253.8	240.2	226.3	216.4	201.6	179.6
65°	93.7	103.2	125.5	175.0	207.7	214.5	207.7	197.5	189.8	174.3	157.0
67.5°	77.0	86.2	100.2	132.6	168.5	176.8	175.6	170.3	162.3	150.9	132.6
70°	63.7	69.2	79.4	98.3	132.3	145.0	148.7	144.1	136.9	124.6	111.3
72.5°	52.6	56.9	61.8	75.4	98.9	115.6	121.8	119.3	114.1	102.3	91.2
75°	43.0	45.8	49.2	55.6	71.1	90.0	97.1	96.4	91.2	81.3	72.3
77.5°	34.6	35.5	38.0	42.0	49.8	66.8	72.3	74.2	70.2	61.8	54.7
80°	26.0	27.2	28.4	30.6	34.3	44.2	51.3	54.1	50.7	45.8	38.6
82.5°	18.2	18.5	19.8	21.0	22.9	26.9	34.3	37.4	34.3	29.1	26.9
85°	11.4	11.1	11.4	11.7	13.6	14.5	19.2	21.3	20.7	17.6	15.1
87.5°	5.3	5.3	4.9	5.3	4.9	5.9	6.8	9.9	7.4	6.5	5.9
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: P242241

CATALOG NUMBER: S121RDR-S490D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	822.3	822.3	822.3	822.3	822.3	822.3	822.3	822.3	822.3	822.3	822.3
2.5°	812.7	811.8	808.7	804.3	800.6	794.5	794.5	796.0	795.7	796.3	795.7
5°	799.7	795.4	790.7	784.9	779.3	771.3	770.3	771.0	770.7	770.3	768.5
7.5°	783.0	778.1	772.2	764.8	758.6	750.9	748.7	748.1	745.6	744.7	742.2
10°	766.9	761.1	753.3	744.4	736.0	727.1	721.5	718.4	714.4	710.1	706.4
12.5°	749.0	741.3	731.4	720.6	706.7	696.8	688.4	683.2	677.6	670.2	664.9
15°	729.9	714.1	702.3	684.7	667.7	664.3	651.6	634.9	633.7	597.5	584.9
17.5°	704.2	691.2	669.3	646.4	623.2	604.3	604.7	559.5	545.6	545.3	523.0
20°	677.6	659.7	634.3	611.1	586.7	547.8	516.9	502.0	479.5	470.8	458.1
22.5°	646.4	622.9	593.2	561.7	527.7	496.1	465.9	451.6	440.2	430.6	425.4
25°	609.3	585.5	549.9	510.7	472.7	443.3	426.6	420.1	400.6	393.8	387.3
27.5°	571.9	545.9	499.6	461.8	430.6	410.5	393.2	382.4	373.1	355.8	348.1
30°	536.3	494.6	456.3	421.7	398.2	379.3	366.6	344.7	331.7	323.7	320.3
32.5°	497.7	453.2	418.6	388.6	364.5	348.1	329.2	314.4	308.5	298.0	282.9
35°	458.1	417.6	381.5	357.4	336.6	314.4	302.6	288.4	273.6	265.5	264.3
37.5°	419.8	381.5	355.5	330.1	305.1	292.1	274.8	259.7	254.4	247.0	239.0
40°	385.2	352.4	328.3	299.2	284.1	264.0	250.7	243.0	230.3	227.5	225.0
42.5°	356.7	328.6	301.4	275.4	257.8	241.7	230.0	221.0	217.0	210.2	208.0
45°	328.0	302.0	274.2	253.8	233.7	220.1	212.1	204.3	199.7	197.8	194.1
47.5°	302.0	276.7	251.0	226.0	212.4	203.4	194.4	190.4	187.6	183.6	181.5
50°	277.3	249.2	225.0	209.3	194.8	186.7	180.8	177.1	172.8	168.5	162.3
52.5°	252.2	228.1	205.0	188.3	177.4	172.2	166.6	162.6	153.9	145.6	140.3
55°	226.9	202.2	183.3	170.6	162.9	157.3	150.9	139.1	131.1	126.4	124.0
57.5°	204.0	181.8	165.1	154.6	149.0	139.7	128.3	120.9	116.9	115.0	113.8
60°	179.6	160.4	146.5	138.5	129.8	117.5	111.3	107.6	106.3	105.7	104.8
62.5°	158.6	141.6	130.8	121.8	109.4	102.9	99.5	97.7	97.7	96.8	96.1
65°	136.3	123.0	113.8	100.8	94.3	91.5	90.3	89.3	88.4	88.1	86.9
67.5°	118.1	106.3	94.3	87.5	83.5	81.9	80.7	80.4	79.1	78.2	77.3
70°	99.5	88.1	78.2	75.1	73.0	72.3	71.1	69.9	68.9	67.7	67.1
72.5°	81.0	70.2	66.8	65.2	63.1	62.1	60.6	59.7	58.1	57.5	56.9
75°	61.8	57.5	55.6	54.4	52.9	50.7	50.1	49.2	48.5	47.6	46.7
77.5°	49.2	46.7	44.5	43.0	41.7	40.2	39.0	38.6	38.0	37.1	36.8
80°	36.8	34.9	34.0	32.5	30.9	30.0	29.4	29.1	28.1	27.8	27.5
82.5°	25.3	23.8	23.2	21.3	20.7	20.7	20.4	19.8	19.2	18.9	18.5
85°	14.2	13.6	12.7	13.0	12.1	12.1	11.7	11.4	11.1	10.8	10.5
87.5°	5.6	5.3	4.9	4.6	4.6	3.7	3.7	3.7	4.0	3.7	3.4
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: P242241

CATALOG NUMBER: S121RDR-S490D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	822.3	822.3	822.3	822.3
2.5°	796.6	797.2	795.1	793.8
5°	768.5	767.6	766.3	765.4
7.5°	739.7	738.8	738.8	735.1
10°	704.8	702.3	700.5	697.4
12.5°	660.3	656.6	655.4	651.6
15°	576.2	568.5	563.2	572.5
17.5°	517.8	497.7	499.2	491.5
20°	457.8	449.8	453.8	442.1
22.5°	418.9	413.9	409.3	406.8
25°	382.7	376.8	369.7	372.2
27.5°	337.3	337.3	332.6	334.5
30°	314.1	311.6	303.9	305.4
32.5°	277.9	274.8	273.9	274.5
35°	260.6	255.6	254.1	252.2
37.5°	236.5	234.6	234.9	233.7
40°	220.4	218.9	217.0	217.6
42.5°	206.5	205.6	203.7	204.0
45°	192.9	192.0	191.0	191.0
47.5°	177.7	175.9	174.3	172.5
50°	158.0	154.3	151.5	150.2
52.5°	136.6	134.8	132.9	132.9
55°	123.0	122.1	121.5	121.2
57.5°	113.4	112.8	112.8	111.9
60°	104.8	104.8	104.5	105.1
62.5°	96.4	95.5	95.8	95.8
65°	86.9	86.6	86.2	85.9
67.5°	76.7	76.4	76.7	76.0
70°	66.5	66.5	66.2	65.5
72.5°	56.0	56.6	56.0	55.6
75°	46.1	45.8	46.1	45.1
77.5°	36.8	35.5	36.2	36.5
80°	27.2	27.2	26.9	26.6
82.5°	18.2	18.5	17.9	17.9
85°	10.5	10.5	9.9	10.5
87.5°	3.1	3.1	3.1	3.7
90°	0.0	0.0	0.0	0.0

(END OF REPORT)