

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: P243445

Luminaire Tested: **S123RDR-H560D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243445  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-69)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123RDR-H560D935-X4F0-XX-UDD-A-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

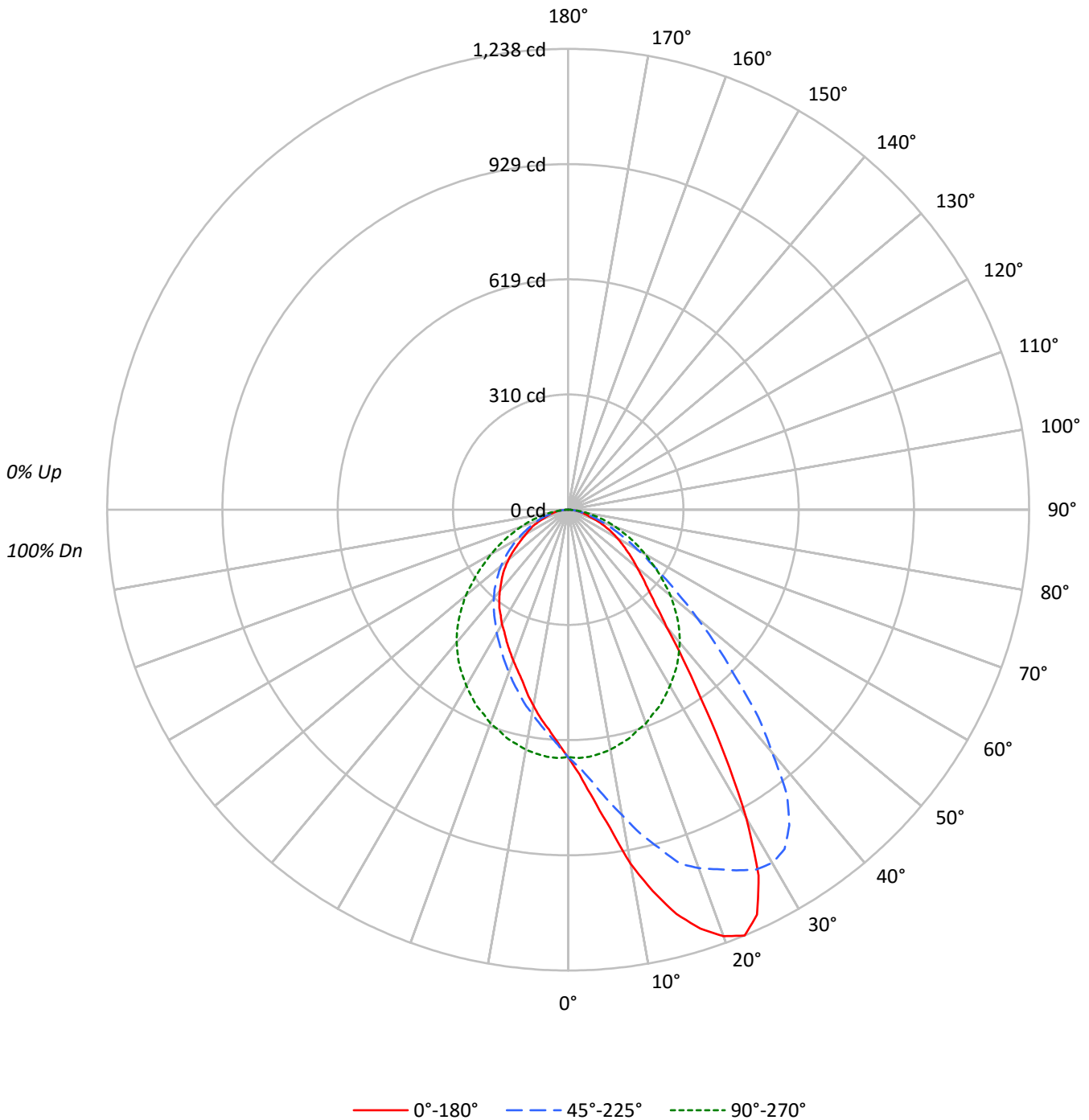
Lumens per Lamp: N/A  
Luminaire Lumens: 1731.9 lumens  
Efficiency: N/A  
Efficacy: 100.7 lumens/watt  
Spacing Criteria (0/90/45): 1.28 / 1.22 / 1.4  
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 17.2  
Input Voltage (V): 120  
Input Current (Ain): 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: P243445

CATALOG NUMBER: S123RDR-H560D935-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			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	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	89	87
2	101	94	88	83	99	92	86	82	89	84	80	85	81	78	82	79	76	74
3	93	84	76	70	91	82	75	70	79	73	68	76	71	67	74	70	66	64
4	86	75	67	61	84	74	66	60	71	65	59	69	63	59	67	62	58	56
5	79	68	59	53	77	66	59	53	64	57	52	62	56	52	61	55	51	49
6	74	61	53	47	72	60	52	47	59	52	46	57	51	46	55	50	46	44
7	69	56	48	42	67	55	47	42	54	47	41	52	46	41	51	45	41	39
8	64	51	43	38	62	51	43	37	49	42	37	48	42	37	47	41	37	35
9	60	47	39	34	59	47	39	34	45	39	34	44	38	34	43	38	33	32
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31	29

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	8057	8057	8057
5°	9498	8101	7214
10°	11890	8054	6585
15°	14110	7974	5964
20°	15727	7878	5553
25°	16052	7780	5228
30°	13376	7648	4973
35°	9241	7542	4765
40°	6494	7370	4514
45°	5215	7109	4270
50°	4546	6770	3951
55°	4076	6266	3519
60°	3687	5789	3185
65°	3227	5335	2980
70°	2605	4802	2523
75°	2257	4182	2473
80°	2080	3567	2485
85°	1836	2879	2156



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	65.2	3.8
10°-20°	205.3	11.9
20°-30°	328.9	19.0
30°-40°	357.1	20.6
40°-50°	305.9	17.7
50°-60°	231.9	13.4
60°-70°	148.2	8.6
70°-80°	70.9	4.1
80°-90°	18.6	1.1
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
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0°-30°	599.4	34.6
0°-40°	956.5	55.2
0°-60°	1494.3	86.3
0°-90°	1731.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1731.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	665	665	665	665	665	
5°	781	733	666	605	593	80
15°	1124	940	635	510	475	319
25°	1200	1069	582	422	391	533
35°	624	1035	510	346	322	401
45°	304	634	415	274	249	240
55°	193	310	296	196	166	174
65°	112	150	186	118	104	112
75°	48	58	89	56	53	52
85°	13	14	21	16	16	15
90°	0	0	0	0	0	



TEST NUMBER: P243445

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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7
2.5°	712.3	713.2	711.7	711.5	711.2	706.6	705.1	702.9	694.8	692.8	691.4
5°	780.6	778.3	780.9	776.0	770.6	767.4	762.3	750.8	740.7	732.7	727.5
7.5°	861.6	862.4	859.8	855.2	844.3	839.7	825.7	811.9	798.7	782.1	769.7
10°	966.0	959.1	960.6	946.2	934.7	921.0	901.7	879.6	856.4	832.9	815.4
12.5°	1049.3	1054.1	1050.7	1043.8	1021.7	1008.2	990.7	958.6	921.8	890.3	863.6
15°	1124.4	1117.8	1118.7	1102.1	1094.0	1081.7	1052.7	1020.8	997.0	939.9	908.3
17.5°	1179.6	1179.0	1178.1	1164.1	1154.3	1128.5	1098.9	1066.2	1036.3	996.7	957.1
20°	1219.2	1223.5	1222.3	1210.8	1193.6	1168.6	1150.9	1110.1	1061.0	1024.9	976.4
22.5°	1238.1	1238.4	1239.0	1233.5	1222.0	1206.0	1180.7	1148.0	1104.4	1045.2	991.3
25°	1200.2	1201.7	1209.1	1213.7	1216.9	1209.7	1196.5	1166.9	1129.3	1069.1	1013.1
27.5°	1107.2	1111.8	1120.1	1147.7	1158.9	1174.4	1179.8	1168.1	1140.2	1090.0	1026.3
30°	955.7	968.6	976.6	1007.9	1051.8	1093.2	1112.7	1131.9	1129.3	1096.0	1031.5
32.5°	782.4	790.7	813.9	847.5	882.2	942.8	1010.5	1057.0	1083.1	1081.4	1035.8
35°	624.5	636.6	656.4	681.9	729.8	792.7	869.3	942.5	1007.9	1035.2	1018.8
37.5°	506.8	508.0	526.6	562.8	592.6	648.0	717.2	807.6	893.4	964.6	980.4
40°	410.4	418.4	428.2	450.9	486.2	539.3	585.2	674.2	763.1	852.4	916.1
42.5°	349.6	349.6	360.5	374.8	398.4	430.2	485.0	565.7	645.7	755.4	827.1
45°	304.2	307.1	312.0	321.1	337.8	362.5	405.0	459.8	541.6	633.7	741.6
47.5°	271.5	271.2	275.5	281.0	293.9	312.5	337.5	382.0	442.5	541.8	637.1
50°	241.1	242.2	245.4	250.0	258.6	271.8	287.6	321.1	372.2	450.9	550.7
52.5°	217.5	217.3	219.8	222.7	229.3	236.8	250.8	275.8	311.1	373.7	456.6
55°	192.9	194.0	197.2	198.9	204.3	209.2	221.0	235.0	263.5	310.5	386.0
57.5°	171.6	173.1	174.8	176.5	180.2	185.1	194.9	203.5	224.1	258.0	318.3
60°	152.1	151.5	153.5	156.4	158.4	162.7	168.2	177.1	191.4	215.5	259.7
62.5°	132.6	132.9	133.2	134.9	138.6	142.3	147.2	153.8	162.4	180.2	211.5
65°	112.5	112.8	113.4	115.1	118.8	121.1	126.3	132.0	138.9	149.5	171.3
67.5°	94.7	95.9	95.9	97.3	98.7	101.0	104.8	109.1	114.8	122.5	136.6
70°	73.5	73.2	74.6	77.5	78.9	82.9	85.5	88.4	93.6	98.4	110.5
72.5°	59.1	59.1	59.1	60.3	60.6	61.4	63.1	69.2	73.2	78.1	84.7
75°	48.2	48.5	48.5	48.8	49.1	49.9	50.5	52.2	53.4	58.5	62.6
77.5°	38.5	38.7	38.7	39.0	39.3	39.6	40.8	40.8	41.6	42.8	44.5
80°	29.8	29.6	29.6	29.8	29.8	30.7	30.7	31.3	31.6	32.1	33.0
82.5°	21.2	21.0	21.2	21.0	21.2	21.5	22.1	21.8	22.4	23.0	23.2
85°	13.2	13.5	13.5	14.1	13.8	13.5	13.8	13.8	13.8	13.8	14.3
87.5°	5.7	6.3	6.3	6.0	6.3	6.3	5.7	6.3	6.3	6.3	6.6
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°	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7
2.5°	690.5	689.4	685.1	681.0	675.0	672.4	669.0	667.6	663.0	656.6	653.8
5°	722.7	714.0	705.7	695.7	687.4	677.6	672.1	665.8	656.1	647.2	640.9
7.5°	756.8	744.2	728.7	712.0	697.1	683.0	671.0	661.0	648.3	636.0	626.2
10°	794.4	772.9	747.9	726.7	705.1	684.8	669.6	654.4	638.0	622.5	610.7
12.5°	834.9	804.4	774.3	742.5	710.3	686.8	664.1	644.6	626.2	609.9	595.8
15°	876.8	835.2	796.7	760.8	716.1	684.5	659.5	635.4	612.4	592.4	578.6
17.5°	906.6	859.0	810.5	759.7	721.2	682.2	651.2	620.8	599.5	578.9	560.2
20°	934.2	880.2	822.5	775.2	721.5	673.9	640.0	610.7	581.2	559.1	543.3
22.5°	945.9	897.1	838.9	773.2	719.5	670.7	627.1	594.1	567.7	543.6	522.9
25°	948.2	893.7	834.0	770.6	711.7	658.9	614.7	581.7	547.3	522.3	506.3
27.5°	958.3	883.7	825.1	762.0	702.3	647.2	600.7	563.9	531.8	505.1	484.4
30°	960.9	879.4	806.2	745.9	684.5	630.5	583.5	546.4	511.4	484.2	465.5
32.5°	962.0	873.6	786.4	720.4	661.8	611.0	568.0	527.8	494.5	465.8	446.6
35°	958.0	865.6	762.5	691.4	635.1	585.2	545.3	509.7	472.7	445.7	425.3
37.5°	942.2	853.0	749.1	657.5	603.8	556.8	522.9	487.9	453.7	424.5	403.5
40°	912.4	834.6	723.8	629.1	568.3	526.1	494.5	465.8	431.4	403.2	382.6
42.5°	864.7	809.6	700.6	597.0	533.0	493.1	466.7	442.0	411.0	384.3	361.6
45°	794.1	774.6	669.6	564.2	494.5	456.9	433.9	414.7	386.6	362.2	341.2
47.5°	717.8	722.1	638.3	530.9	459.5	423.6	403.5	386.6	365.3	339.2	320.0
50°	629.7	653.2	594.4	497.4	424.5	389.2	369.4	359.0	339.2	317.4	299.3
52.5°	549.0	586.3	549.9	460.6	390.0	355.3	336.9	326.6	313.4	295.3	277.0
55°	465.5	512.9	486.5	421.0	355.0	320.0	304.5	296.5	285.6	271.5	254.9
57.5°	396.3	446.9	430.2	379.4	320.9	289.3	275.5	266.3	259.7	246.8	233.3
60°	328.6	375.4	368.8	331.5	287.0	256.9	246.2	238.8	233.3	223.9	210.7
62.5°	265.2	310.5	314.5	285.3	254.0	226.7	217.0	211.8	207.5	200.0	188.0
65°	210.4	250.3	258.6	236.2	219.3	198.6	189.1	186.0	182.8	174.2	165.0
67.5°	164.7	196.0	206.9	194.3	182.2	170.2	162.7	158.4	156.1	151.0	144.6
70°	126.0	153.0	162.2	156.7	148.7	144.1	138.3	135.5	133.2	126.6	123.1
72.5°	94.4	112.8	124.3	122.5	120.8	117.7	114.2	113.4	109.9	105.6	102.5
75°	69.2	79.8	90.1	93.8	93.3	94.4	90.7	89.3	87.2	84.1	81.5
77.5°	49.7	56.0	63.1	67.7	70.0	70.3	70.3	69.5	68.0	65.7	63.7
80°	34.4	35.9	42.5	46.8	49.1	50.8	50.8	51.1	49.7	48.8	47.4
82.5°	23.8	24.7	26.1	29.6	32.4	34.4	34.7	34.4	33.9	33.6	31.6
85°	14.9	14.6	14.6	15.5	17.8	19.8	20.1	20.7	20.4	20.1	18.1
87.5°	6.3	6.3	6.6	6.3	7.2	7.5	8.0	9.5	9.2	7.7	7.2
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: P243445

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**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7
2.5°	652.1	648.3	644.9	641.1	636.6	632.3	631.7	631.1	632.5	629.7	628.5
5°	636.0	628.8	623.4	616.5	611.6	605.3	601.8	601.0	600.7	599.0	596.7
7.5°	618.5	610.7	603.0	595.2	587.2	580.6	576.9	574.9	573.1	570.3	568.0
10°	602.1	592.4	584.0	573.4	564.8	556.2	552.8	549.9	548.2	544.1	541.0
12.5°	583.7	571.4	562.2	550.7	543.0	535.5	530.1	524.6	520.6	514.6	512.0
15°	567.7	554.8	539.3	532.4	521.5	510.3	504.3	504.3	495.9	491.0	487.9
17.5°	546.2	535.0	524.1	510.0	494.5	487.9	481.0	475.0	469.2	467.8	462.1
20°	527.2	514.0	502.8	487.6	473.5	465.8	457.8	451.2	446.9	442.8	439.7
22.5°	508.6	495.4	478.1	463.2	453.7	443.4	434.8	429.1	425.3	419.3	416.4
25°	489.0	473.3	457.8	443.1	431.4	422.5	413.6	410.4	403.8	400.6	396.6
27.5°	469.5	450.6	435.9	423.3	410.1	401.5	395.5	389.7	384.0	382.3	380.0
30°	447.7	430.2	416.1	403.8	391.2	383.7	376.5	371.4	366.5	362.8	360.2
32.5°	425.9	411.3	397.8	383.4	371.9	363.9	357.9	353.3	351.0	344.7	342.4
35°	405.8	390.9	376.5	363.0	353.9	346.1	340.7	336.4	331.5	327.5	325.2
37.5°	385.1	371.7	357.0	345.5	335.2	328.9	322.9	317.1	313.4	311.1	308.2
40°	365.1	350.7	339.5	326.9	317.7	310.5	304.2	299.9	295.3	293.3	289.6
42.5°	346.1	332.3	319.4	307.9	299.6	292.7	286.7	281.8	278.1	274.4	272.4
45°	324.3	312.3	300.5	289.0	281.3	273.8	267.2	262.9	257.7	254.6	253.4
47.5°	305.9	293.3	280.7	270.1	262.0	254.0	248.5	243.4	239.1	235.9	234.2
50°	284.1	272.4	262.0	251.4	243.7	235.0	228.4	223.6	218.7	216.4	213.5
52.5°	265.5	254.0	241.4	231.9	223.0	215.5	209.5	205.5	201.2	197.7	195.7
55°	242.2	231.0	221.0	210.9	202.0	196.0	191.1	184.3	180.5	177.1	171.6
57.5°	221.8	211.2	200.6	190.9	182.5	175.4	169.3	164.7	159.9	157.3	153.5
60°	200.3	189.1	179.4	171.9	162.7	155.0	151.0	145.5	141.5	137.5	136.3
62.5°	179.1	168.8	159.0	151.2	142.9	136.9	131.7	129.1	125.1	122.0	120.8
65°	157.0	148.4	139.2	130.6	125.4	118.5	115.7	111.4	109.1	107.6	107.3
67.5°	135.2	127.4	119.1	112.5	107.6	103.0	99.6	97.9	95.6	93.8	92.4
70°	115.4	107.9	100.7	95.3	91.6	88.1	85.8	82.7	80.4	78.1	74.9
72.5°	95.9	89.8	83.8	79.5	75.8	73.8	70.6	65.7	63.4	62.9	62.6
75°	77.8	71.2	66.9	64.6	61.1	56.3	54.2	53.7	53.4	52.8	52.8
77.5°	60.0	56.0	53.1	48.2	46.5	46.2	44.8	44.5	43.9	44.2	44.2
80°	43.6	41.3	37.9	36.4	35.9	36.2	35.6	35.9	35.3	35.6	35.0
82.5°	29.0	27.0	27.6	26.7	26.7	27.3	27.0	26.1	26.1	25.8	25.8
85°	17.2	16.9	17.5	17.5	17.2	16.4	16.9	16.6	15.8	16.1	16.1
87.5°	7.5	7.5	7.5	7.2	7.5	7.2	7.2	7.2	6.3	6.3	6.3
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: P243445

CATALOG NUMBER: S123RDR-H560D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	664.7	664.7	664.7	664.7
2.5°	629.1	628.5	627.7	626.8
5°	596.7	594.1	593.8	592.9
7.5°	566.2	565.1	563.1	565.4
10°	538.4	539.3	537.3	535.0
12.5°	509.4	507.7	504.5	506.3
15°	483.9	481.0	479.3	475.3
17.5°	457.2	454.9	454.9	452.3
20°	433.9	431.6	432.2	430.5
22.5°	414.4	412.7	410.1	410.4
25°	396.1	393.5	390.6	390.9
27.5°	375.7	373.4	372.8	370.8
30°	357.6	355.6	355.3	355.3
32.5°	340.1	339.2	337.8	336.9
35°	324.9	323.7	321.4	322.0
37.5°	305.9	304.8	304.5	304.2
40°	288.1	287.3	285.0	285.3
42.5°	270.3	268.9	267.5	266.9
45°	251.1	250.8	248.5	249.1
47.5°	232.8	232.2	231.0	229.6
50°	212.4	212.1	211.2	209.5
52.5°	192.6	191.7	190.0	188.3
55°	170.2	167.6	167.9	166.5
57.5°	151.8	150.7	148.4	147.5
60°	134.0	132.9	132.6	131.4
62.5°	119.1	118.0	117.1	117.1
65°	105.6	104.2	103.9	103.9
67.5°	90.7	89.3	89.0	88.4
70°	72.0	71.7	71.2	71.2
72.5°	62.0	61.7	62.0	60.8
75°	52.8	52.5	52.5	52.8
77.5°	43.9	43.9	43.6	43.6
80°	34.7	35.0	34.7	35.6
82.5°	26.1	25.5	25.8	25.3
85°	16.1	16.1	15.5	15.5
87.5°	6.3	6.3	6.3	6.3
90°	0.0	0.0	0.0	0.0

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