

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: P243342

Luminaire Tested: **S123DR-H560D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243342  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-59)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123DR-H560D935-X4F0-XX-UDD-A-W  
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

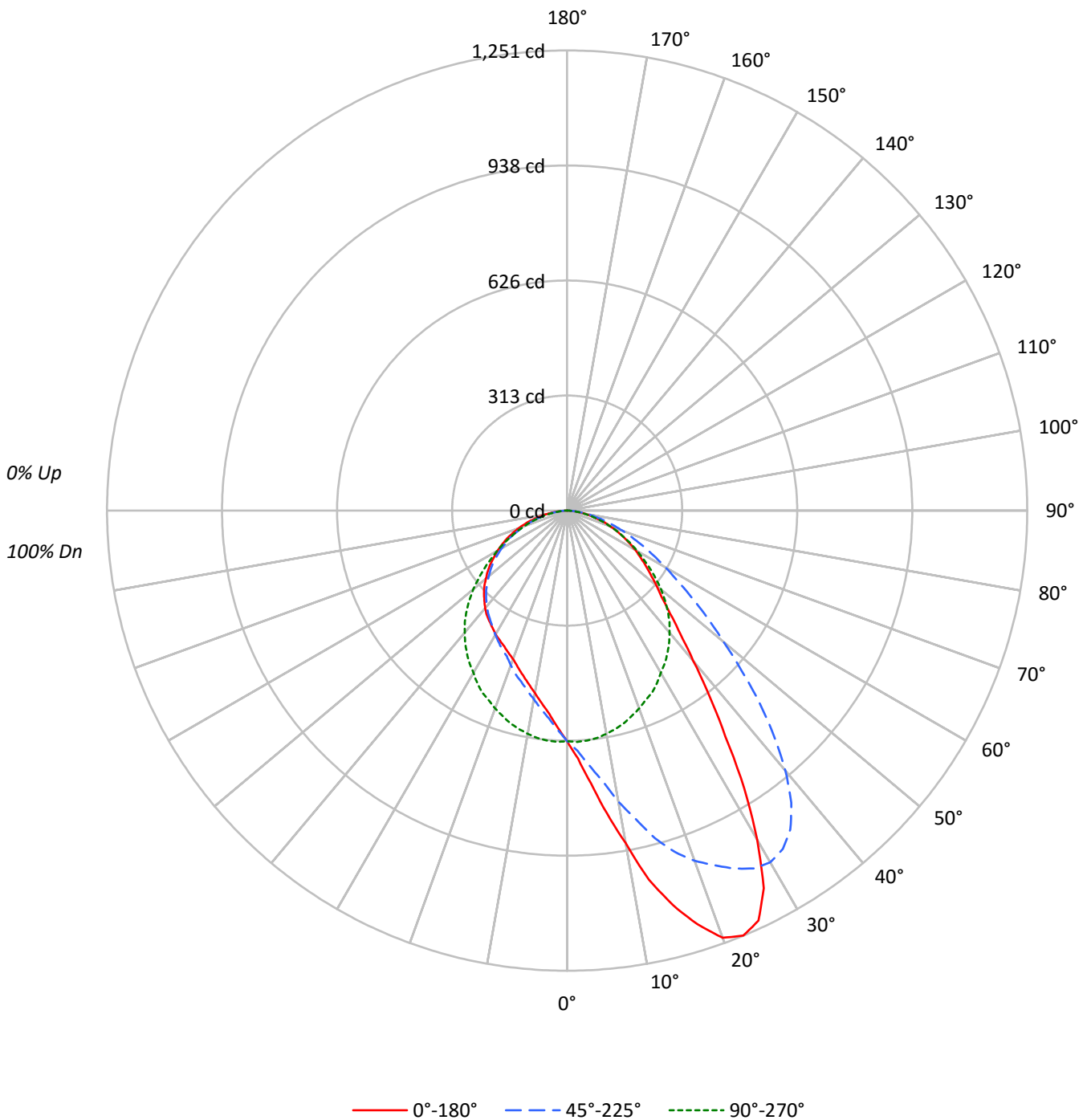
Lumens per Lamp: N/A  
Luminaire Lumens: 1889.0 lumens  
Efficiency: N/A  
Efficacy: 109.8 lumens/watt  
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5  
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 17.2  
Input Voltage (V): 120  
Input Current (A<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: P243342

CATALOG NUMBER: S123DR-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	
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	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85
2	100	92	86	81	98	91	85	80	87	82	78	84	80	76	81	77	74	72
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38	36
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34	33
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31	29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	28	38	33	28	27

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

	0°	90°	180°
0°	7598	7598	7598
5°	9051	7634	6747
10°	11304	7587	6202
15°	13930	7505	5820
20°	15941	7385	5538
25°	16450	7304	5435
30°	14453	7130	5439
35°	11092	7024	5444
40°	8437	6853	5486
45°	6788	6632	5480
50°	5974	6278	5433
55°	5507	5816	5397
60°	5190	5321	5287
65°	4824	4864	5186
70°	4416	4363	4962
75°	3925	3803	4622
80°	3288	3148	4049
85°	2309	2281	3032



TEST NUMBER: P243342

CATALOG NUMBER: S123DR-H560D935-X4F0-XX-UDD-A-W

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	61.7	3.3
10°-20°	198.0	10.5
20°-30°	327.0	17.3
30°-40°	374.2	19.8
40°-50°	339.1	18.0
50°-60°	274.0	14.5
60°-70°	190.9	10.1
70°-80°	100.1	5.3
80°-90°	23.9	1.3
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°	586.6	31.1
0°-40°	960.9	50.9
0°-60°	1574.1	83.3
0°-90°	1889.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1889.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	627	627	627	627	627	
5°	744	696	627	567	554	77
15°	1110	922	598	482	464	316
25°	1230	1074	546	416	406	550
35°	750	1058	475	364	368	475
45°	396	739	387	312	320	312
55°	261	415	275	244	255	234
65°	168	227	170	167	181	167
75°	84	103	81	84	99	89
85°	17	21	16	18	22	21
90°	0	0	0	0	0	



TEST NUMBER: P243342

CATALOG NUMBER: S123DR-H560D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8
2.5°	675.0	676.4	674.1	675.6	672.1	670.1	667.0	665.5	658.6	653.8	652.0
5°	743.9	743.9	744.4	741.0	737.0	729.8	720.3	714.3	707.4	695.7	689.6
7.5°	830.5	826.2	823.4	817.0	811.6	799.8	789.5	777.2	761.1	741.6	731.2
10°	918.4	922.9	920.1	913.5	899.4	880.2	865.0	847.2	822.2	803.3	776.3
12.5°	1028.0	1022.0	1017.4	1007.3	991.8	971.4	947.9	921.5	889.4	858.1	828.0
15°	1110.1	1110.9	1110.6	1097.4	1082.2	1054.7	1032.9	989.0	948.2	921.8	871.9
17.5°	1179.5	1183.2	1178.9	1159.1	1145.6	1129.3	1101.5	1052.7	1015.6	972.9	917.8
20°	1235.8	1236.3	1229.4	1214.8	1199.3	1180.9	1144.2	1106.9	1070.7	1013.3	960.8
22.5°	1250.7	1252.1	1250.7	1244.4	1231.7	1212.2	1184.7	1150.2	1104.6	1043.5	994.7
25°	1230.0	1229.2	1234.0	1230.3	1229.7	1223.4	1205.3	1177.5	1132.4	1073.6	1011.6
27.5°	1157.7	1151.7	1164.0	1180.1	1182.4	1192.4	1192.7	1179.8	1147.4	1097.1	1029.7
30°	1032.6	1038.3	1044.3	1077.9	1096.6	1122.7	1145.4	1153.7	1141.3	1104.3	1041.2
32.5°	896.5	914.9	931.8	955.1	982.4	1026.5	1062.4	1094.0	1107.5	1091.1	1041.2
35°	749.6	759.4	786.1	815.6	854.9	889.4	960.5	1006.5	1047.5	1058.1	1028.0
37.5°	634.8	643.7	652.9	675.9	720.0	777.4	836.3	896.5	957.4	1001.0	999.3
40°	533.2	535.2	543.3	563.1	599.8	650.9	712.6	785.2	864.1	923.5	948.5
42.5°	455.2	455.2	465.2	488.2	509.4	546.7	606.4	670.4	756.8	833.1	886.5
45°	396.0	396.6	404.7	421.0	437.7	466.9	511.1	571.4	660.4	739.3	813.6
47.5°	347.8	353.3	357.9	366.5	383.1	409.0	441.1	492.5	555.9	642.0	728.7
50°	316.8	318.0	321.4	326.6	339.5	356.4	384.3	423.3	479.6	555.9	643.4
52.5°	286.4	286.4	289.9	296.2	303.6	317.4	337.5	369.9	412.1	481.3	559.9
55°	260.6	261.4	262.0	267.2	273.5	283.8	299.6	320.9	359.6	415.0	483.6
57.5°	235.3	238.5	237.6	241.6	246.2	253.7	264.9	283.3	312.8	355.0	416.7
60°	214.1	213.5	215.0	216.7	219.8	225.0	235.3	248.8	273.5	308.8	359.3
62.5°	190.0	189.4	191.1	193.1	196.0	200.3	207.8	218.1	237.6	264.0	307.9
65°	168.2	167.6	168.5	169.6	172.8	176.2	181.9	190.6	203.5	226.7	260.3
67.5°	146.4	146.4	146.9	148.1	150.1	152.7	157.3	162.4	175.3	190.8	217.2
70°	124.6	124.8	124.8	126.0	127.7	129.7	133.4	138.0	146.1	159.9	181.1
72.5°	105.6	105.6	105.0	105.6	106.8	107.6	109.9	114.2	120.2	130.3	146.4
75°	83.8	85.2	84.9	84.7	85.5	87.0	89.0	92.4	96.1	103.3	115.4
77.5°	64.3	65.1	65.1	65.4	66.3	67.4	68.0	71.5	74.9	79.2	88.1
80°	47.1	47.6	47.1	47.4	47.9	49.1	50.2	50.8	53.4	57.1	61.4
82.5°	31.6	30.7	31.9	31.6	32.1	32.4	33.0	33.3	35.0	37.3	40.2
85°	16.6	18.1	17.8	18.4	17.8	18.1	18.4	19.5	19.8	21.2	23.0
87.5°	6.3	6.9	6.9	6.9	6.9	6.9	7.5	7.7	8.3	8.6	9.2
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: P243342

CATALOG NUMBER: S123DR-H560D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8
2.5°	653.2	650.6	646.9	642.8	638.5	634.2	632.2	629.6	624.5	619.3	615.3
5°	684.7	677.6	667.8	660.6	650.3	640.6	632.8	627.4	619.0	609.0	602.4
7.5°	720.0	707.1	691.6	675.9	660.4	645.7	633.7	623.3	610.4	598.1	588.0
10°	761.7	736.7	715.2	692.2	669.3	648.6	631.4	616.4	599.8	584.9	572.5
12.5°	798.4	769.4	739.6	707.1	676.1	649.4	627.4	607.8	587.7	570.5	557.9
15°	838.9	798.1	756.8	720.0	682.5	649.7	620.8	598.1	575.1	555.6	541.0
17.5°	885.4	830.8	778.9	726.1	692.8	650.6	615.0	585.2	561.6	542.1	523.2
20°	912.9	858.7	795.0	740.7	685.6	642.3	602.7	572.5	545.0	522.6	507.1
22.5°	927.8	870.7	804.1	748.5	684.2	635.7	593.5	557.9	528.3	506.0	488.4
25°	948.8	870.7	809.0	742.1	686.5	627.9	580.3	546.1	515.1	489.3	470.9
27.5°	958.2	878.5	809.6	730.1	672.7	613.3	565.1	528.9	494.5	469.2	453.4
30°	966.0	879.9	798.1	720.6	656.6	596.9	549.9	509.4	477.3	453.2	436.5
32.5°	966.6	876.2	782.6	702.8	635.1	577.7	531.8	493.6	460.0	434.5	418.1
35°	961.4	867.0	764.8	675.6	610.1	557.9	512.0	474.7	440.5	416.1	399.5
37.5°	948.2	856.7	748.2	650.0	580.6	529.8	490.7	455.2	421.3	396.9	383.1
40°	920.1	840.0	726.4	622.8	550.7	499.9	465.8	433.1	402.9	377.7	363.9
42.5°	882.8	815.0	700.0	593.8	517.4	468.4	438.2	411.8	381.1	359.3	345.2
45°	830.0	781.2	673.6	563.4	484.4	436.2	408.7	386.9	360.5	338.6	326.3
47.5°	770.3	740.4	639.4	529.2	449.7	404.4	378.2	360.7	338.4	319.7	307.4
50°	703.1	691.9	601.8	494.8	417.3	370.8	346.7	332.9	314.0	299.0	288.4
52.5°	630.2	637.1	562.2	459.8	386.0	338.9	316.0	303.3	291.3	278.7	268.6
55°	556.2	572.5	514.3	421.6	350.1	309.1	286.7	275.2	266.3	255.7	248.5
57.5°	486.7	512.3	464.6	380.8	317.1	277.8	256.6	246.5	239.9	234.2	227.6
60°	419.3	448.8	413.5	342.7	284.1	248.2	229.3	219.5	216.4	212.1	205.8
62.5°	359.6	389.7	363.3	303.3	250.8	220.1	202.9	194.9	190.3	188.8	185.1
65°	303.6	331.8	311.7	262.3	219.3	192.0	176.8	169.6	167.0	166.7	163.9
67.5°	255.1	282.4	264.0	222.4	186.0	163.9	152.4	146.6	144.1	144.4	142.3
70°	210.4	229.6	218.7	186.0	157.8	138.3	129.4	123.1	121.1	121.1	120.5
72.5°	168.7	184.0	175.6	150.7	128.6	113.6	105.9	102.2	100.4	100.2	100.4
75°	132.0	145.2	137.8	118.2	101.6	90.4	83.8	81.2	80.4	79.8	80.1
77.5°	98.7	107.0	102.5	89.8	76.1	68.3	65.1	62.6	61.7	62.0	62.6
80°	69.7	74.3	71.7	63.7	54.5	49.4	47.1	45.1	44.2	45.1	45.1
82.5°	44.2	47.6	45.3	40.2	35.6	32.1	29.8	29.3	29.0	28.4	29.3
85°	24.1	25.8	24.7	23.0	19.8	18.4	16.6	16.4	16.4	16.4	16.4
87.5°	9.5	10.6	9.2	9.2	8.6	7.2	7.2	6.9	6.6	6.9	6.9
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: P243342

CATALOG NUMBER: S123DR-H560D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8
2.5°	613.6	609.8	607.5	604.4	600.7	595.8	593.8	595.8	594.6	592.6	593.5
5°	596.6	591.8	585.5	580.3	574.5	567.4	565.1	563.9	562.2	561.3	559.9
7.5°	580.0	572.8	565.1	557.9	549.6	543.3	540.4	538.4	537.8	533.5	531.8
10°	562.8	553.9	546.1	536.4	529.2	520.9	517.4	515.1	512.6	509.7	507.7
12.5°	544.7	535.8	526.0	516.9	509.7	500.5	495.9	493.3	491.3	489.3	487.0
15°	528.9	520.0	506.5	499.6	491.0	481.8	479.0	473.2	473.8	470.4	468.1
17.5°	512.3	499.1	489.6	479.3	473.0	466.4	460.9	454.9	454.0	451.4	450.6
20°	493.6	479.8	473.2	462.6	454.0	447.4	442.5	442.0	440.2	436.5	435.1
22.5°	475.2	464.1	454.9	445.1	437.4	428.8	426.5	427.3	424.2	423.3	420.1
25°	458.6	448.8	437.4	428.2	421.9	416.4	413.3	412.1	411.0	410.1	408.7
27.5°	440.8	430.5	420.7	413.3	407.2	403.5	401.5	398.9	398.6	398.6	398.0
30°	423.0	413.8	407.2	397.8	392.3	390.0	388.3	387.4	388.3	388.3	388.6
32.5°	406.7	397.8	390.0	383.4	378.0	376.2	376.0	376.0	377.1	377.1	378.0
35°	389.7	380.8	373.7	369.1	364.5	364.2	364.5	365.0	366.5	366.8	367.9
37.5°	371.4	364.5	359.0	353.3	352.1	352.7	353.3	353.9	354.4	356.7	356.7
40°	354.4	349.3	343.8	340.1	338.1	339.5	340.4	340.7	342.4	343.8	345.0
42.5°	337.8	332.9	328.6	325.4	324.6	325.7	326.6	327.5	329.2	330.3	332.3
45°	319.1	316.0	312.2	309.7	309.9	311.7	311.7	314.5	315.7	316.3	317.7
47.5°	301.9	298.5	295.9	294.7	294.4	295.9	296.7	299.0	299.6	301.6	302.8
50°	283.5	281.0	279.0	277.5	277.8	278.4	280.4	282.7	283.3	285.6	287.6
52.5°	264.3	262.0	260.3	260.9	261.7	261.7	263.7	265.2	266.6	268.3	270.3
55°	245.4	242.2	242.5	241.6	242.5	244.5	245.4	247.7	248.8	249.7	252.5
57.5°	224.7	224.1	223.3	222.4	224.1	225.0	226.4	227.9	229.9	231.0	233.0
60°	203.5	202.6	202.6	203.8	204.3	206.1	208.4	209.2	209.8	212.1	214.7
62.5°	184.0	183.1	182.8	184.5	184.5	186.3	187.1	188.5	190.8	191.7	195.2
65°	163.0	162.4	162.4	163.9	164.2	167.3	167.3	167.3	168.7	171.9	173.6
67.5°	141.2	141.5	142.3	143.2	144.4	145.2	145.5	147.2	149.5	151.5	155.0
70°	119.4	120.8	122.5	122.3	123.1	124.6	124.8	126.6	128.6	131.2	135.2
72.5°	99.9	100.7	102.5	102.5	103.6	104.5	105.9	107.0	109.6	111.9	113.6
75°	80.4	80.6	82.1	82.9	83.8	84.4	85.8	87.8	89.3	91.3	93.8
77.5°	63.1	62.6	63.7	64.0	64.6	65.7	66.9	68.9	70.0	72.3	73.2
80°	44.8	45.9	46.2	46.5	47.1	48.5	49.4	50.2	51.4	53.4	54.2
82.5°	29.6	30.1	31.0	31.3	31.9	32.1	32.4	33.9	34.7	35.3	38.2
85°	17.2	18.1	17.5	17.5	18.1	18.4	19.5	19.5	20.7	20.1	21.5
87.5°	7.5	7.2	7.2	7.5	7.2	6.9	7.7	7.7	7.5	7.7	7.7
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: P243342

CATALOG NUMBER: S123DR-H560D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	626.8	626.8	626.8	626.8
2.5°	592.1	592.1	589.8	590.6
5°	557.0	558.2	555.3	554.5
7.5°	531.2	530.1	528.1	528.1
10°	506.0	504.8	503.9	503.9
12.5°	484.1	483.0	481.3	482.7
15°	464.6	464.9	463.8	463.8
17.5°	449.7	447.1	446.3	446.0
20°	431.9	432.5	431.3	429.3
22.5°	420.7	419.3	418.1	417.9
25°	409.2	407.8	407.5	406.4
27.5°	397.8	398.0	397.2	397.2
30°	388.3	389.2	388.3	388.6
32.5°	378.8	378.8	378.8	377.7
35°	368.5	368.8	368.5	367.9
37.5°	357.9	357.9	358.2	358.7
40°	346.1	346.1	346.7	346.7
42.5°	332.0	333.5	334.3	332.9
45°	319.4	319.7	320.0	319.7
47.5°	305.4	304.5	304.8	305.4
50°	287.8	289.9	289.9	288.1
52.5°	270.9	271.5	272.6	272.6
55°	254.3	254.6	254.8	255.4
57.5°	235.3	235.6	235.6	235.3
60°	216.4	218.1	217.8	218.1
62.5°	196.0	198.6	199.5	199.2
65°	176.8	177.4	178.8	180.8
67.5°	156.4	157.8	160.1	159.6
70°	136.3	138.3	138.9	140.0
72.5°	116.2	118.8	119.4	120.0
75°	96.7	97.9	99.0	98.7
77.5°	75.5	77.2	79.2	78.1
80°	56.5	56.8	58.5	58.0
82.5°	37.3	39.6	39.6	38.5
85°	21.8	21.8	21.8	21.8
87.5°	7.5	7.2	7.7	7.5
90°	0.0	0.0	0.0	0.0

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