

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: P243435

Luminaire Tested: **S123RDR-H560D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243435
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-H560D840-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2031.4 lumens
Efficiency: N/A
Efficacy: 118.1 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

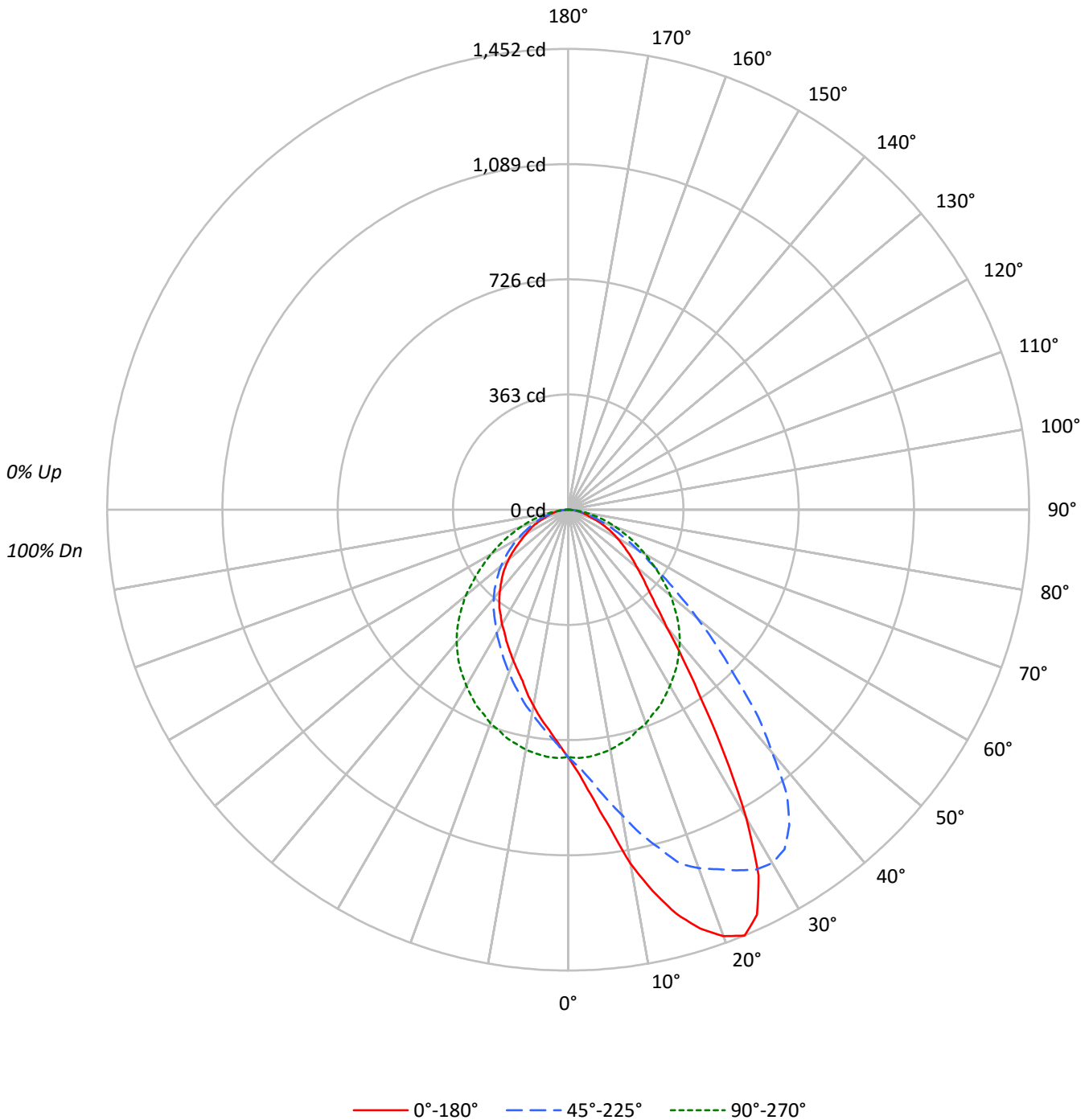
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P243435

CATALOG NUMBER: S123RDR-H560D840-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot





TEST NUMBER: P243435

CATALOG NUMBER: S123RDR-H560D840-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	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°	9450	9450	9450
5°	11141	9503	8463
10°	13946	9447	7723
15°	16551	9353	6995
20°	18444	9240	6513
25°	18827	9125	6132
30°	15689	8970	5832
35°	10839	8846	5589
40°	7617	8644	5294
45°	6116	8338	5009
50°	5333	7941	4633
55°	4780	7348	4125
60°	4325	6790	3738
65°	3786	6255	3496
70°	3055	5631	2959
75°	2651	4903	2899
80°	2443	4181	2911
85°	2156	3366	2531



TEST NUMBER: P243435

CATALOG NUMBER: S123RDR-H560D840-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	76.5	3.8
10°-20°	240.8	11.9
20°-30°	385.8	19.0
30°-40°	418.8	20.6
40°-50°	358.8	17.7
50°-60°	272.0	13.4
60°-70°	173.8	8.6
70°-80°	83.1	4.1
80°-90°	21.8	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
0°-30°	703.0	34.6
0°-40°	1121.8	55.2
0°-60°	1752.6	86.3
0°-90°	2031.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2031.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	780	780	780	780	780	
5°	916	859	781	710	696	94
15°	1319	1102	745	598	557	374
25°	1408	1254	682	496	458	625
35°	732	1214	598	406	378	470
45°	357	743	486	321	292	282
55°	226	364	348	230	195	204
65°	132	175	218	139	122	131
75°	57	69	105	66	62	61
85°	16	16	24	19	18	18
90°	0	0	0	0	0	



TEST NUMBER: P243435

CATALOG NUMBER: S123RDR-H560D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	779.6	779.6	779.6	779.6	779.6	779.6	779.6	779.6	779.6	779.6	779.6
2.5°	835.5	836.5	834.8	834.5	834.1	828.8	827.1	824.4	814.9	812.6	810.9
5°	915.6	912.9	915.9	910.2	903.8	900.1	894.1	880.6	868.8	859.4	853.3
7.5°	1010.5	1011.5	1008.5	1003.1	990.3	984.9	968.4	952.3	936.8	917.3	902.8
10°	1133.1	1125.0	1126.7	1109.8	1096.4	1080.2	1057.6	1031.7	1004.5	976.9	956.3
12.5°	1230.7	1236.4	1232.4	1224.3	1198.4	1182.5	1162.0	1124.3	1081.2	1044.2	1012.9
15°	1318.9	1311.1	1312.1	1292.6	1283.2	1268.7	1234.7	1197.3	1169.4	1102.4	1065.4
17.5°	1383.5	1382.8	1381.8	1365.3	1353.9	1323.6	1288.9	1250.5	1215.5	1169.1	1122.6
20°	1429.9	1435.0	1433.7	1420.2	1400.0	1370.7	1349.8	1302.0	1244.5	1202.1	1145.2
22.5°	1452.2	1452.5	1453.2	1446.8	1433.3	1414.5	1384.8	1346.5	1295.3	1226.0	1162.7
25°	1407.7	1409.4	1418.2	1423.6	1427.3	1418.8	1403.4	1368.7	1324.6	1253.9	1188.3
27.5°	1298.7	1304.1	1313.8	1346.1	1359.3	1377.4	1383.8	1370.0	1337.4	1278.5	1203.7
30°	1120.9	1136.1	1145.5	1182.2	1233.7	1282.2	1305.1	1327.6	1324.6	1285.5	1209.8
32.5°	917.6	927.4	954.6	994.0	1034.8	1105.8	1185.2	1239.8	1270.4	1268.4	1214.8
35°	732.5	746.6	769.8	799.8	856.0	929.7	1019.6	1105.4	1182.2	1214.2	1195.0
37.5°	594.5	595.8	617.7	660.1	695.1	760.1	841.2	947.2	1047.9	1131.4	1149.9
40°	481.4	490.8	502.2	528.8	570.2	632.5	686.4	790.7	895.1	999.8	1074.5
42.5°	410.0	410.0	422.8	439.6	467.2	504.6	568.9	663.5	757.4	886.0	970.1
45°	356.8	360.2	365.9	376.7	396.2	425.1	475.0	539.3	635.2	743.2	869.8
47.5°	318.4	318.1	323.2	329.5	344.7	366.6	395.9	448.0	519.1	635.5	747.3
50°	282.8	284.1	287.8	293.2	303.3	318.8	337.3	376.7	436.6	528.8	646.0
52.5°	255.2	254.8	257.8	261.2	269.0	277.7	294.2	323.5	364.9	438.3	535.6
55°	226.2	227.6	231.3	233.3	239.7	245.4	259.2	275.7	309.0	364.2	452.7
57.5°	201.3	203.0	205.0	207.0	211.4	217.1	228.6	238.7	262.9	302.6	373.3
60°	178.4	177.7	180.1	183.5	185.8	190.9	197.3	207.7	224.5	252.8	304.6
62.5°	155.5	155.9	156.2	158.2	162.6	167.0	172.7	180.4	190.5	211.4	248.1
65°	132.0	132.3	133.0	135.0	139.4	142.1	148.1	154.8	162.9	175.4	201.0
67.5°	111.1	112.4	112.4	114.1	115.8	118.5	122.9	127.9	134.6	143.7	160.2
70°	86.2	85.8	87.5	90.9	92.6	97.3	100.3	103.7	109.7	115.5	129.6
72.5°	69.3	69.3	69.3	70.7	71.0	72.0	74.1	81.1	85.8	91.6	99.3
75°	56.6	56.9	56.9	57.2	57.6	58.6	59.2	61.3	62.6	68.7	73.4
77.5°	45.1	45.4	45.4	45.8	46.1	46.5	47.8	47.8	48.8	50.2	52.2
80°	35.0	34.7	34.7	35.0	35.0	36.0	36.0	36.7	37.0	37.7	38.7
82.5°	24.9	24.6	24.9	24.6	24.9	25.2	25.9	25.6	26.3	26.9	27.3
85°	15.5	15.8	15.8	16.5	16.2	15.8	16.2	16.2	16.2	16.2	16.8
87.5°	6.7	7.4	7.4	7.1	7.4	7.4	6.7	7.4	7.4	7.4	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: P243435

CATALOG NUMBER: S123RDR-H560D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	779.6	779.6	779.6	779.6	779.6	779.6	779.6	779.6	779.6	779.6	779.6
2.5°	809.9	808.6	803.5	798.8	791.7	788.7	784.7	783.0	777.6	770.2	766.8
5°	847.6	837.5	827.7	816.0	806.2	794.8	788.4	781.0	769.5	759.1	751.7
7.5°	887.7	872.8	854.7	835.1	817.6	801.1	787.0	775.2	760.4	745.9	734.5
10°	931.8	906.5	877.2	852.3	827.1	803.2	785.3	767.5	748.3	730.1	716.3
12.5°	979.2	943.5	908.2	870.8	833.1	805.5	778.9	756.0	734.5	715.3	698.8
15°	1028.4	979.6	934.4	892.4	839.9	802.8	773.5	745.3	718.3	694.8	678.6
17.5°	1063.4	1007.5	950.6	891.0	845.9	800.1	763.8	728.1	703.2	679.0	657.1
20°	1095.7	1032.4	964.7	909.2	846.3	790.4	750.7	716.3	681.6	655.7	637.2
22.5°	1109.5	1052.3	983.9	906.8	843.9	786.7	735.5	696.8	665.8	637.6	613.3
25°	1112.2	1048.2	978.2	903.8	834.8	772.9	721.0	682.3	641.9	612.6	593.8
27.5°	1124.0	1036.4	967.8	893.7	823.7	759.1	704.5	661.5	623.8	592.4	568.2
30°	1127.0	1031.4	945.6	874.9	802.8	739.5	684.3	640.9	599.9	567.9	546.0
32.5°	1128.3	1024.7	922.3	844.9	776.2	716.7	666.2	619.0	580.0	546.3	523.8
35°	1123.6	1015.2	894.4	810.9	744.9	686.4	639.6	597.8	554.4	522.8	498.9
37.5°	1105.1	1000.4	878.6	771.2	708.2	653.0	613.3	572.2	532.2	497.9	473.3
40°	1070.1	978.9	848.9	737.9	666.5	617.0	580.0	546.3	505.9	472.9	448.7
42.5°	1014.2	949.6	821.7	700.2	625.1	578.3	547.3	518.4	482.0	450.7	424.1
45°	931.4	908.5	785.3	661.8	580.0	535.9	509.0	486.4	453.4	424.8	400.2
47.5°	841.9	846.9	748.6	622.7	538.9	496.8	473.3	453.4	428.5	397.9	375.3
50°	738.5	766.1	697.1	583.4	497.9	456.5	433.2	421.1	397.9	372.3	351.1
52.5°	643.9	687.7	645.0	540.3	457.5	416.7	395.2	383.1	367.6	346.4	324.8
55°	546.0	601.5	570.6	493.8	416.4	375.3	357.2	347.7	334.9	318.4	298.9
57.5°	464.9	524.1	504.6	445.0	376.3	339.3	323.2	312.4	304.6	289.5	273.7
60°	385.4	440.3	432.6	388.8	336.6	301.3	288.8	280.1	273.7	262.6	247.1
62.5°	311.0	364.2	368.9	334.6	297.9	265.9	254.5	248.4	243.4	234.6	220.5
65°	246.7	293.5	303.3	277.0	257.2	232.9	221.8	218.1	214.4	204.3	193.6
67.5°	193.2	229.9	242.7	227.9	213.8	199.6	190.9	185.8	183.1	177.1	169.7
70°	147.8	179.4	190.2	183.8	174.4	169.0	162.2	158.9	156.2	148.4	144.4
72.5°	110.7	132.3	145.8	143.7	141.7	138.0	134.0	133.0	128.9	123.9	120.2
75°	81.1	93.6	105.7	110.1	109.4	110.7	106.4	104.7	102.3	98.6	95.6
77.5°	58.2	65.6	74.1	79.4	82.1	82.5	82.5	81.5	79.8	77.1	74.7
80°	40.4	42.1	49.8	54.9	57.6	59.6	59.6	59.9	58.2	57.2	55.5
82.5°	27.9	28.9	30.6	34.7	38.0	40.4	40.7	40.4	39.7	39.4	37.0
85°	17.5	17.2	17.2	18.2	20.9	23.2	23.6	24.2	23.9	23.6	21.2
87.5°	7.4	7.4	7.7	7.4	8.4	8.8	9.4	11.1	10.8	9.1	8.4
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: P243435

CATALOG NUMBER: S123RDR-H560D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	779.6	779.6	779.6	779.6	779.6	779.6	779.6	779.6	779.6	779.6	779.6
2.5°	764.8	760.4	756.4	752.0	746.6	741.6	740.9	740.2	741.9	738.5	737.2
5°	745.9	737.5	731.1	723.1	717.3	709.9	705.9	704.9	704.5	702.5	699.8
7.5°	725.4	716.3	707.2	698.1	688.7	681.0	676.6	674.2	672.2	668.9	666.2
10°	706.2	694.8	685.0	672.6	662.5	652.4	648.3	645.0	642.9	638.2	634.5
12.5°	684.7	670.2	659.4	646.0	636.9	628.1	621.7	615.3	610.6	603.6	600.5
15°	665.8	650.7	632.5	624.4	611.6	598.5	591.4	591.4	581.7	576.0	572.2
17.5°	640.6	627.5	614.7	598.2	580.0	572.2	564.2	557.1	550.4	548.7	542.0
20°	618.4	602.9	589.8	571.9	555.4	546.3	536.9	529.2	524.1	519.4	515.7
22.5°	596.5	581.0	560.8	543.3	532.2	520.1	510.0	503.2	498.9	491.8	488.4
25°	573.6	555.1	536.9	519.7	505.9	495.5	485.1	481.4	473.6	469.9	465.2
27.5°	550.7	528.5	511.3	496.5	481.0	470.9	463.9	457.1	450.4	448.4	445.7
30°	525.1	504.6	488.1	473.6	458.8	450.1	441.6	435.6	429.9	425.5	422.5
32.5°	499.5	482.4	466.6	449.7	436.3	426.8	419.8	414.4	411.7	404.3	401.6
35°	476.0	458.5	441.6	425.8	415.0	406.0	399.6	394.5	388.8	384.1	381.4
37.5°	451.7	435.9	418.8	405.3	393.2	385.8	378.7	372.0	367.6	364.9	361.5
40°	428.2	411.3	398.2	383.4	372.6	364.2	356.8	351.8	346.4	344.0	339.6
42.5°	406.0	389.8	374.7	361.2	351.4	343.3	336.3	330.6	326.2	321.8	319.4
45°	380.4	366.2	352.4	339.0	329.9	321.1	313.4	308.3	302.3	298.6	297.2
47.5°	358.8	344.0	329.2	316.8	307.3	297.9	291.5	285.5	280.4	276.7	274.7
50°	333.3	319.4	307.3	294.9	285.8	275.7	267.9	262.2	256.5	253.8	250.4
52.5°	311.4	297.9	283.1	272.0	261.6	252.8	245.7	241.0	236.0	231.9	229.6
55°	284.1	271.0	259.2	247.4	237.0	229.9	224.2	216.1	211.7	207.7	201.3
57.5°	260.2	247.7	235.3	223.9	214.1	205.7	198.6	193.2	187.5	184.5	180.1
60°	235.0	221.8	210.4	201.6	190.9	181.8	177.1	170.7	166.0	161.2	159.9
62.5°	210.0	197.9	186.5	177.4	167.6	160.6	154.5	151.5	146.8	143.1	141.7
65°	184.1	174.0	163.3	153.2	147.1	139.0	135.7	130.6	127.9	126.2	125.9
67.5°	158.5	149.5	139.7	132.0	126.2	120.8	116.8	114.8	112.1	110.1	108.4
70°	135.3	126.6	118.2	111.8	107.4	103.3	100.6	96.9	94.3	91.6	87.9
72.5°	112.4	105.4	98.3	93.2	88.9	86.5	82.8	77.1	74.4	73.7	73.4
75°	91.2	83.5	78.4	75.7	71.7	66.0	63.6	62.9	62.6	61.9	61.9
77.5°	70.4	65.6	62.3	56.6	54.5	54.2	52.5	52.2	51.5	51.8	51.8
80°	51.2	48.5	44.4	42.8	42.1	42.4	41.7	42.1	41.4	41.7	41.1
82.5°	34.0	31.6	32.3	31.3	31.3	32.0	31.6	30.6	30.6	30.3	30.3
85°	20.2	19.9	20.5	20.5	20.2	19.2	19.9	19.5	18.5	18.9	18.9
87.5°	8.8	8.8	8.8	8.4	8.8	8.4	8.4	8.4	7.4	7.4	7.4
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: P243435

CATALOG NUMBER: S123RDR-H560D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	779.6	779.6	779.6	779.6
2.5°	737.9	737.2	736.2	735.2
5°	699.8	696.8	696.5	695.5
7.5°	664.1	662.8	660.4	663.1
10°	631.5	632.5	630.1	627.5
12.5°	597.5	595.5	591.8	593.8
15°	567.5	564.2	562.1	557.4
17.5°	536.2	533.5	533.5	530.5
20°	509.0	506.3	506.9	504.9
22.5°	486.1	484.1	481.0	481.4
25°	464.5	461.5	458.1	458.5
27.5°	440.6	437.9	437.3	434.9
30°	419.4	417.1	416.7	416.7
32.5°	398.9	397.9	396.2	395.2
35°	381.1	379.7	377.0	377.7
37.5°	358.8	357.5	357.2	356.8
40°	338.0	337.0	334.3	334.6
42.5°	317.1	315.4	313.7	313.1
45°	294.5	294.2	291.5	292.2
47.5°	273.0	272.3	271.0	269.3
50°	249.1	248.8	247.7	245.7
52.5°	225.9	224.9	222.8	220.8
55°	199.6	196.6	196.9	195.2
57.5°	178.1	176.7	174.0	173.0
60°	157.2	155.9	155.5	154.2
62.5°	139.7	138.3	137.3	137.3
65°	123.9	122.2	121.9	121.9
67.5°	106.4	104.7	104.4	103.7
70°	84.5	84.2	83.5	83.5
72.5°	72.7	72.4	72.7	71.4
75°	61.9	61.6	61.6	61.9
77.5°	51.5	51.5	51.2	51.2
80°	40.7	41.1	40.7	41.7
82.5°	30.6	30.0	30.3	29.6
85°	18.9	18.9	18.2	18.2
87.5°	7.4	7.4	7.4	7.4
90°	0.0	0.0	0.0	0.0

(END OF REPORT)