

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: P242575

Luminaire Tested: **S123RDR-S560D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242575  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-30)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123RDR-S560D840-X4F0-XX-UDD-A-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

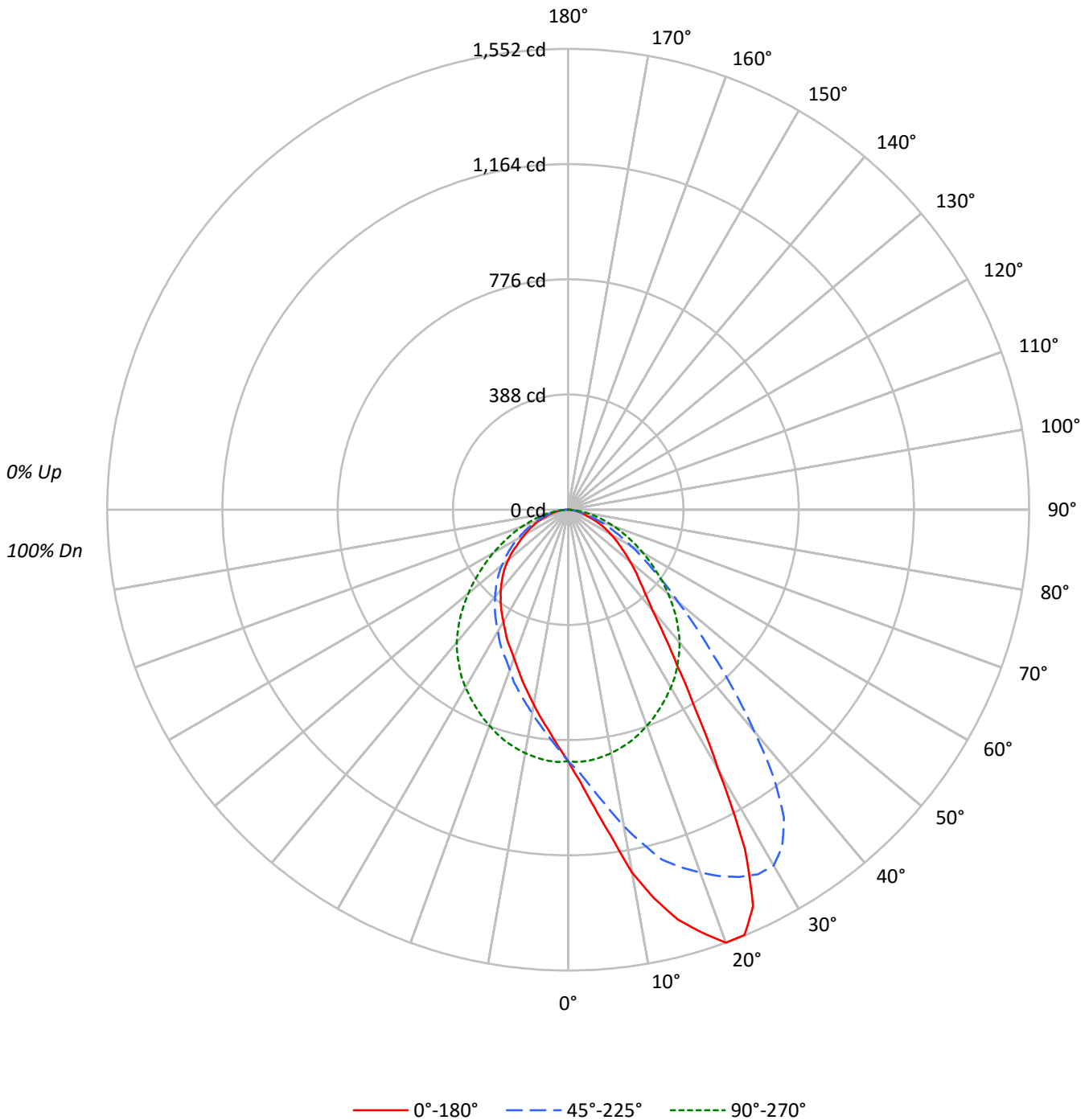
Lumens per Lamp: N/A  
Luminaire Lumens: 2108.9 lumens  
Efficiency: N/A  
Efficacy: 112.2 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.22 / 1.35  
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 18.8  
Input Voltage (V): 120  
Input Current (A<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



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### 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	106	102	99	108	104	100	97	100	97	94	96	93	91	92	90	89	87
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	74
3	93	84	76	71	91	82	75	70	79	74	69	77	72	68	74	70	66	64
4	86	75	67	61	84	74	66	61	71	65	60	69	64	59	67	62	58	56
5	80	68	60	53	78	67	59	53	65	58	53	63	57	52	61	56	52	50
6	74	62	53	47	72	61	53	47	59	52	47	57	51	46	56	50	46	44
7	69	56	48	42	67	55	48	42	54	47	42	53	46	42	51	46	41	39
8	64	52	44	38	63	51	43	38	50	43	38	48	42	38	47	42	37	36
9	60	48	40	35	59	47	40	35	46	39	34	45	39	34	44	38	34	32
10	57	44	37	32	55	44	36	32	43	36	31	42	36	31	41	35	31	29

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

	0°	90°	180°
0°	10265	10265	10265
5°	12237	10310	9079
10°	15279	10250	8202
15°	17935	10146	7480
20°	20017	9989	6865
25°	19696	9825	6488
30°	14157	9672	6100
35°	9453	9475	5848
40°	6965	9236	5587
45°	5842	8820	5333
50°	5156	8273	4976
55°	4520	7646	4491
60°	4027	7050	4114
65°	3536	6405	3826
70°	2775	5833	3494
75°	2445	5095	3194
80°	2129	4328	3141
85°	1711	3477	3324



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	83.2	3.9
10°-20°	260.4	12.3
20°-30°	410.1	19.4
30°-40°	426.4	20.2
40°-50°	364.8	17.3
50°-60°	278.1	13.2
60°-70°	178.1	8.4
70°-80°	85.3	4.0
80°-90°	22.5	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°	753.6	35.7
0°-40°	1180.1	56.0
0°-60°	1822.9	86.4
0°-90°	2108.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2108.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	847	847	847	847	847	
5°	1006	943	847	765	746	103
15°	1429	1220	808	636	596	405
25°	1473	1365	735	525	485	640
35°	639	1266	640	428	395	415
45°	341	687	514	339	311	267
55°	214	343	362	244	212	193
65°	123	169	223	153	133	121
75°	52	61	109	78	68	56
85°	12	13	25	23	24	14
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°	846.9	846.9	846.9	846.9	846.9	846.9	846.9	846.9	846.9	846.9	846.9
2.5°	915.8	917.3	912.6	911.8	906.4	905.0	905.0	897.3	892.6	886.5	882.8
5°	1005.7	1011.5	1008.6	1002.1	991.2	988.7	981.8	970.9	958.6	943.4	936.1
7.5°	1108.7	1120.7	1118.5	1108.4	1096.7	1089.5	1070.3	1054.7	1031.1	1009.7	993.1
10°	1241.4	1233.1	1226.5	1216.8	1206.2	1189.2	1168.9	1141.0	1108.7	1083.3	1055.1
12.5°	1340.8	1341.1	1332.4	1322.3	1306.3	1290.4	1264.3	1228.7	1189.9	1150.4	1117.1
15°	1429.2	1431.4	1426.0	1415.4	1394.4	1365.8	1328.1	1313.9	1260.3	1220.4	1180.5
17.5°	1492.3	1492.7	1491.6	1477.4	1454.6	1435.0	1399.9	1366.9	1316.1	1262.1	1208.8
20°	1551.8	1548.1	1548.9	1532.5	1516.6	1493.0	1458.9	1404.9	1365.0	1300.1	1244.7
22.5°	1550.3	1550.3	1553.6	1550.7	1540.2	1523.5	1498.5	1455.0	1401.3	1335.7	1271.5
25°	1472.7	1469.8	1486.9	1491.6	1510.1	1513.3	1505.4	1480.3	1432.1	1364.7	1287.5
27.5°	1287.8	1277.3	1312.8	1348.0	1394.8	1424.5	1455.0	1461.8	1439.0	1383.9	1303.0
30°	1011.5	1045.6	1061.6	1118.9	1182.7	1258.8	1325.5	1389.0	1404.6	1383.5	1320.1
32.5°	796.9	825.6	838.2	885.4	943.7	1036.2	1144.6	1241.0	1316.5	1341.8	1309.9
35°	638.8	639.2	669.7	691.4	746.5	838.2	935.4	1055.8	1175.4	1266.1	1275.5
37.5°	527.2	528.6	548.2	569.9	614.2	665.7	755.9	857.5	1001.4	1136.6	1207.0
40°	440.2	443.4	457.2	478.6	508.3	544.9	611.6	705.9	821.2	976.0	1102.6
42.5°	384.3	390.1	395.6	410.8	426.4	460.1	510.8	578.3	680.5	824.8	975.7
45°	340.8	343.7	349.1	356.8	373.4	397.4	433.6	482.6	569.6	687.4	833.5
47.5°	307.5	305.6	311.8	318.3	329.6	347.0	372.4	414.8	480.0	578.6	705.2
50°	273.4	273.0	277.0	281.7	292.2	304.2	324.1	354.2	403.5	481.8	595.3
52.5°	241.5	243.3	245.8	252.0	258.9	267.9	285.3	304.9	345.5	410.4	500.3
55°	213.9	215.0	219.0	222.3	227.7	237.5	248.7	266.8	295.9	343.0	420.9
57.5°	190.0	189.6	193.6	194.0	200.9	209.2	218.3	232.4	254.5	291.9	346.2
60°	166.1	165.0	168.2	170.8	174.0	180.6	187.8	201.6	218.3	244.0	289.0
62.5°	144.3	143.9	146.1	148.7	151.2	157.0	162.8	172.6	184.9	205.6	238.9
65°	123.3	124.4	125.4	126.5	128.0	131.6	137.4	144.7	153.7	169.0	194.7
67.5°	101.5	103.0	103.3	105.9	108.8	110.6	113.8	120.7	127.6	141.4	156.6
70°	78.3	78.0	78.3	79.4	83.4	87.4	92.1	96.8	100.8	109.9	122.2
72.5°	64.5	63.8	64.9	64.9	66.3	66.7	69.2	73.6	79.0	84.5	92.5
75°	52.2	52.2	52.2	52.2	53.7	54.4	55.5	56.6	58.4	61.3	67.8
77.5°	40.6	40.6	41.3	41.7	42.1	42.4	43.1	44.2	45.0	46.4	49.7
80°	30.5	30.8	30.5	30.8	30.8	31.5	31.9	33.0	33.4	35.2	36.3
82.5°	21.0	20.7	21.0	21.4	21.4	22.1	22.1	22.8	22.8	23.6	24.7
85°	12.3	11.6	12.3	12.0	12.7	12.0	12.3	13.1	13.1	13.4	14.9
87.5°	3.6	4.4	3.6	4.0	4.0	4.4	4.4	4.4	5.1	4.7	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°	846.9	846.9	846.9	846.9	846.9	846.9	846.9	846.9	846.9	846.9	846.9
2.5°	881.4	880.3	875.2	869.4	861.8	856.7	852.7	850.6	844.0	836.1	830.6
5°	928.5	917.6	906.0	891.9	878.9	865.4	857.1	847.3	835.3	821.9	812.5
7.5°	975.3	956.4	935.8	914.4	892.6	873.4	855.6	841.1	823.0	804.5	791.8
10°	1030.8	999.6	967.3	934.3	904.2	875.9	854.2	832.8	810.0	787.8	771.2
12.5°	1081.2	1037.7	999.2	956.8	916.2	881.0	847.3	821.2	792.6	768.6	749.1
15°	1122.1	1080.1	1035.1	973.5	922.4	879.6	841.5	808.5	775.2	746.2	727.7
17.5°	1164.9	1101.1	1042.0	994.1	927.4	875.6	831.0	792.6	756.3	726.6	703.4
20°	1189.6	1128.3	1062.7	997.0	931.8	872.0	817.9	774.4	736.4	701.6	680.5
22.5°	1204.4	1133.0	1063.0	991.2	920.9	858.2	804.9	755.9	713.9	681.3	654.1
25°	1215.3	1132.6	1056.5	986.9	916.2	848.8	785.3	734.6	690.0	654.8	627.2
27.5°	1224.0	1128.3	1040.9	965.1	893.7	825.2	767.9	713.5	668.9	632.3	602.2
30°	1226.2	1122.9	1022.4	938.7	865.8	804.2	742.5	691.0	643.2	603.7	576.1
32.5°	1229.1	1109.4	997.4	907.1	832.1	771.2	716.8	668.2	618.9	580.1	551.8
35°	1218.9	1106.2	972.0	869.8	795.1	736.0	685.6	640.3	592.1	554.4	525.7
37.5°	1188.1	1088.4	946.6	828.1	750.9	696.5	654.4	613.1	568.5	527.2	500.7
40°	1136.3	1059.4	916.2	790.7	709.2	653.0	616.0	583.7	540.9	502.9	473.9
42.5°	1059.0	1019.9	887.2	751.6	662.0	608.4	578.6	548.9	512.7	473.9	447.0
45°	961.2	967.3	845.5	709.5	619.3	564.9	535.5	514.5	481.1	449.2	421.3
47.5°	842.2	893.7	800.9	665.3	572.8	521.7	496.0	476.8	453.6	420.6	394.8
50°	726.2	808.5	745.1	620.7	529.7	478.9	453.6	438.7	419.1	394.5	370.2
52.5°	619.3	709.2	677.6	571.0	482.9	437.6	413.0	401.4	386.9	364.0	342.6
55°	522.5	612.0	603.3	521.0	436.2	394.5	375.6	361.8	351.3	333.9	316.5
57.5°	438.3	525.0	526.8	465.5	395.6	353.1	336.8	325.9	318.7	304.9	287.9
60°	359.7	437.6	452.8	409.3	351.3	315.1	299.1	290.8	285.3	274.8	262.5
62.5°	294.4	357.8	375.6	347.3	308.9	275.5	263.9	256.0	252.7	244.0	233.5
65°	235.3	290.4	307.1	289.7	267.6	240.4	230.2	223.3	220.1	215.0	207.0
67.5°	185.6	228.4	246.5	232.0	223.7	204.5	197.6	193.6	190.7	187.1	180.2
70°	142.1	171.9	190.7	187.4	180.9	171.9	167.1	164.6	161.7	158.8	153.0
72.5°	107.3	125.4	142.8	145.7	140.7	140.7	136.7	136.0	134.5	130.9	128.3
75°	75.8	89.9	102.2	107.0	109.1	110.9	109.1	108.8	108.4	105.5	103.7
77.5°	52.6	61.6	70.0	78.3	81.2	83.8	84.1	85.6	84.5	82.7	81.9
80°	38.1	39.9	45.3	52.2	57.6	59.8	61.3	62.0	61.6	61.3	59.8
82.5°	25.0	26.5	28.3	32.6	37.0	41.0	41.7	41.3	42.4	42.8	41.7
85°	14.9	15.2	16.0	16.7	19.2	23.2	24.3	25.0	25.7	25.7	23.6
87.5°	5.8	5.4	6.2	6.2	7.3	7.6	9.8	11.6	12.0	10.5	10.5
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°	846.9	846.9	846.9	846.9	846.9	846.9	846.9	846.9	846.9	846.9	846.9
2.5°	828.8	824.1	820.8	813.6	808.9	803.8	798.7	802.0	801.6	801.3	801.3
5°	804.5	796.2	788.6	778.8	772.6	765.0	759.2	758.5	759.9	754.9	752.0
7.5°	781.7	770.8	759.9	749.8	738.5	729.8	724.4	722.2	718.2	715.0	712.1
10°	757.4	744.0	733.5	720.0	707.7	696.8	690.0	685.2	682.7	680.2	675.5
12.5°	732.4	719.3	705.2	689.6	678.0	664.9	660.2	654.8	649.3	646.4	639.6
15°	708.1	691.0	676.9	661.0	647.9	635.6	628.3	617.8	616.4	612.7	606.2
17.5°	684.5	665.7	645.0	634.1	621.1	608.0	596.4	593.2	582.3	578.6	572.5
20°	655.5	638.5	623.6	608.0	586.6	574.7	566.0	561.2	552.9	547.8	544.2
22.5°	630.5	613.1	595.3	576.5	559.8	546.0	540.2	532.2	528.6	521.0	517.0
25°	606.9	588.1	567.4	547.8	535.1	525.0	514.8	508.3	501.8	498.5	491.3
27.5°	578.3	559.4	539.5	524.3	509.8	499.6	489.8	484.4	476.0	470.6	466.6
30°	555.4	532.2	515.6	502.1	482.2	472.8	465.9	458.6	452.8	447.0	443.1
32.5°	529.0	508.3	492.7	475.3	461.2	450.7	441.2	435.1	430.4	424.9	420.9
35°	501.1	483.3	467.0	450.3	439.1	428.5	418.0	412.6	407.9	402.8	399.2
37.5°	475.7	459.0	443.8	427.8	414.0	405.0	396.3	392.7	386.1	382.5	378.9
40°	452.5	436.2	419.5	404.3	389.8	383.2	375.6	369.5	363.6	361.1	357.1
42.5°	427.1	410.8	397.4	380.7	369.5	360.0	353.1	346.2	342.3	338.3	336.5
45°	402.1	387.6	373.8	357.5	346.2	338.6	330.7	324.5	320.5	318.0	314.0
47.5°	378.2	363.3	349.5	335.0	324.1	315.4	307.1	303.1	297.7	294.8	291.9
50°	351.7	338.6	323.8	310.7	299.8	291.1	284.6	279.2	274.5	270.5	268.7
52.5°	327.4	313.3	300.9	289.0	277.4	267.2	261.4	255.6	252.3	247.6	245.5
55°	300.2	286.8	275.9	263.9	252.7	244.4	237.1	232.0	228.4	223.3	220.4
57.5°	275.2	263.6	250.2	239.7	227.7	221.2	215.0	207.7	203.4	199.4	196.5
60°	249.8	236.0	224.8	215.0	204.8	195.8	190.3	184.9	180.2	176.2	173.7
62.5°	223.3	211.7	201.2	190.3	181.3	173.7	167.1	162.8	158.8	156.6	154.1
65°	196.1	186.7	175.8	167.1	158.4	152.6	147.6	143.6	140.7	138.9	136.7
67.5°	171.1	162.1	152.3	143.2	137.4	132.7	129.1	125.4	124.0	121.8	120.4
70°	146.8	137.4	129.1	122.5	116.7	113.5	111.3	108.8	107.3	104.4	103.0
72.5°	120.4	114.2	108.8	103.7	99.3	96.4	93.5	90.3	87.7	84.5	83.0
75°	99.0	92.8	88.1	84.5	81.6	77.6	73.6	70.3	69.2	68.2	67.8
77.5°	77.2	73.2	69.6	66.7	62.7	59.1	58.0	57.3	56.9	56.2	56.2
80°	57.6	54.0	51.5	47.9	45.7	45.7	45.7	45.0	45.3	45.3	45.3
82.5°	39.2	35.9	34.8	34.1	34.1	34.4	34.4	34.8	34.4	35.2	34.8
85°	22.1	22.5	23.2	22.8	23.2	23.2	23.9	23.6	23.9	23.2	23.9
87.5°	10.2	11.2	11.6	12.0	12.3	12.0	12.3	12.3	12.7	12.7	12.7
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: P242575

CATALOG NUMBER: S123RDR-S560D840-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	846.9	846.9	846.9	846.9
2.5°	796.9	796.5	796.9	795.5
5°	750.9	750.5	749.4	746.2
7.5°	709.2	708.4	705.5	706.3
10°	672.9	673.3	668.9	666.4
12.5°	637.7	635.6	632.3	629.4
15°	607.7	604.0	595.3	596.1
17.5°	570.3	567.4	567.0	562.0
20°	538.4	536.6	537.3	532.2
22.5°	513.4	511.6	507.6	506.9
25°	489.1	486.2	483.3	485.1
27.5°	464.4	462.3	459.0	459.0
30°	441.2	439.1	437.6	435.8
32.5°	417.7	417.7	414.8	414.8
35°	397.7	395.6	394.8	395.2
37.5°	378.5	375.6	374.2	372.7
40°	357.5	354.6	353.9	353.1
42.5°	333.9	333.2	332.8	331.4
45°	312.9	312.5	310.4	311.1
47.5°	290.4	288.6	287.5	288.6
50°	267.2	266.5	263.2	263.9
52.5°	244.0	240.7	240.0	239.3
55°	217.9	214.6	213.2	212.5
57.5°	192.2	191.1	189.6	190.7
60°	170.0	170.0	170.0	169.7
62.5°	153.0	151.9	151.6	152.3
65°	135.6	135.2	133.8	133.4
67.5°	119.6	118.2	118.2	117.5
70°	101.2	100.4	98.3	98.6
72.5°	81.2	80.5	80.5	79.8
75°	67.4	67.1	66.7	68.2
77.5°	56.2	56.2	56.6	55.8
80°	45.3	45.3	45.0	45.0
82.5°	34.1	34.4	34.8	34.1
85°	23.9	23.6	24.3	23.9
87.5°	13.4	12.7	12.7	13.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)