

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: P243348

Luminaire Tested: **S123DR-H775D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243348
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-H775D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2739.8 lumens
Efficiency: N/A
Efficacy: 116.1 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

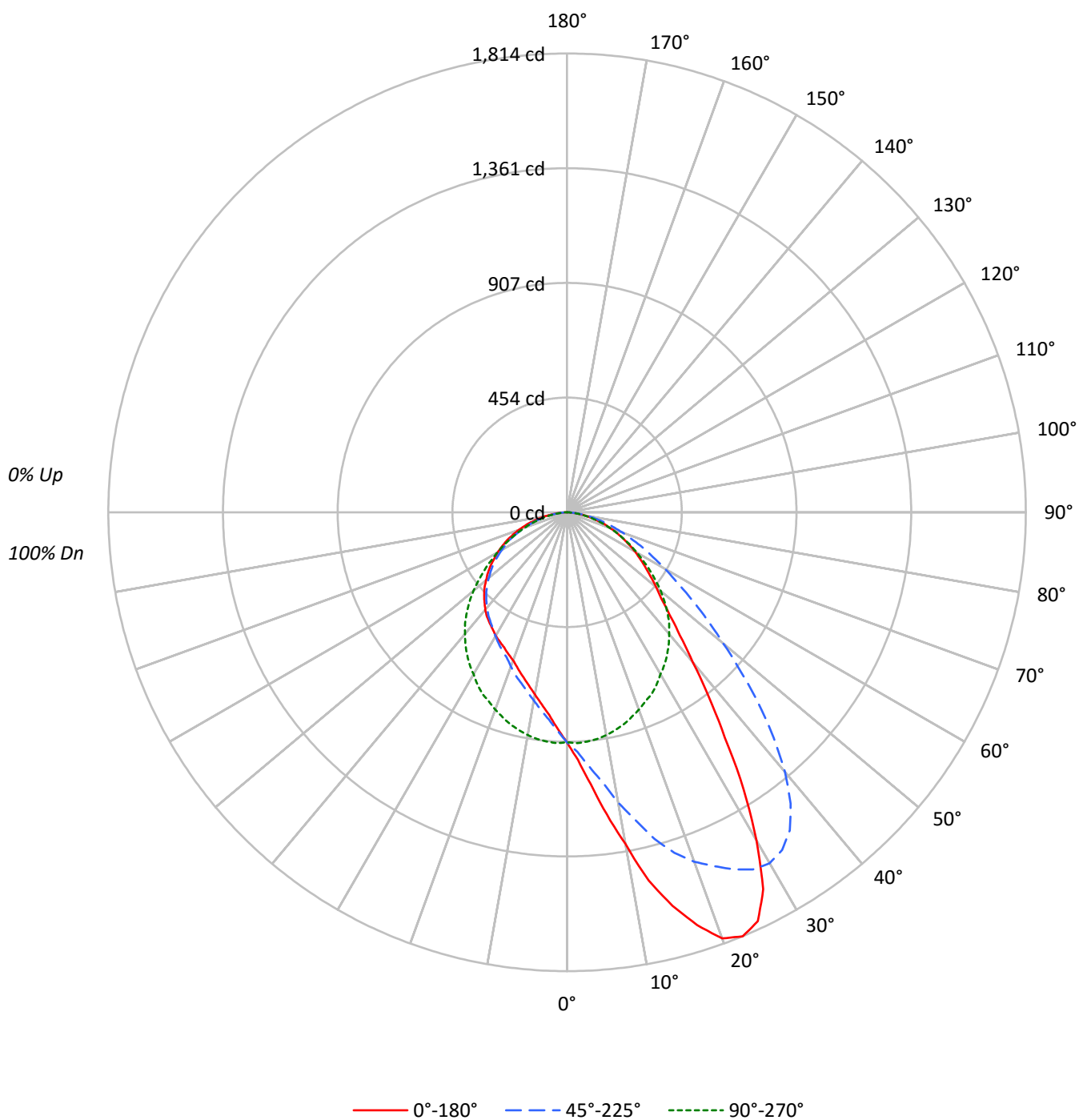
Input Watts (W): 23.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	0
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100		100
1	110	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85		85
2	100	92	86	81	98	91	85	80	87	82	78	84	80	76	81	77	74	72		72
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62		62
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53		53
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46		46
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41		41
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38	36		36
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34	33		33
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31	29		29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	28	38	33	28	27		27

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	11019	11019	11019
5°	13128	11071	9785
10°	16395	11005	8996
15°	20205	10886	8442
20°	23120	10711	8032
25°	23861	10594	7883
30°	20962	10342	7888
35°	16089	10188	7896
40°	12238	9939	7956
45°	9846	9618	7949
50°	8665	9106	7880
55°	7988	8436	7830
60°	7527	7719	7670
65°	6995	7056	7520
70°	6404	6330	7198
75°	5690	5517	6706
80°	4768	4565	5870
85°	3352	3296	4395

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	89.4	3.3
10°-20°	287.2	10.5
20°-30°	474.3	17.3
30°-40°	542.8	19.8
40°-50°	491.9	18.0
50°-60°	397.4	14.5
60°-70°	276.9	10.1
70°-80°	145.2	5.3
80°-90°	34.6	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°	850.9	31.1
0°-40°	1393.7	50.9
0°-60°	2283.1	83.3
0°-90°	2739.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2739.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	909	909	909	909	909	
5°	1079	1009	910	823	804	111
15°	1610	1337	868	699	673	458
25°	1784	1557	792	604	589	797
35°	1087	1535	688	528	534	689
45°	574	1072	561	452	464	453
55°	378	602	399	355	370	340
65°	244	329	246	243	262	242
75°	122	150	118	122	143	130
85°	24	31	24	27	32	31
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°	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1
2.5°	979.0	981.1	977.8	979.9	974.9	972.0	967.4	965.3	955.3	948.2	945.7
5°	1078.9	1078.9	1079.8	1074.8	1068.9	1058.5	1044.8	1036.1	1026.1	1009.0	1000.3
7.5°	1204.6	1198.4	1194.2	1185.1	1177.2	1160.1	1145.1	1127.2	1103.9	1075.6	1060.6
10°	1332.0	1338.7	1334.5	1324.9	1304.5	1276.7	1254.6	1228.8	1192.6	1165.1	1126.0
12.5°	1491.0	1482.3	1475.6	1461.1	1438.6	1409.0	1374.9	1336.6	1290.0	1244.6	1200.9
15°	1610.1	1611.3	1610.9	1591.8	1569.7	1529.7	1498.1	1434.4	1375.3	1337.0	1264.6
17.5°	1710.8	1716.2	1710.0	1681.3	1661.7	1638.0	1597.6	1526.8	1473.1	1411.1	1331.2
20°	1792.4	1793.2	1783.2	1762.0	1739.5	1712.9	1659.6	1605.5	1553.1	1469.8	1393.6
22.5°	1814.0	1816.1	1814.0	1804.9	1786.6	1758.3	1718.3	1668.4	1602.2	1513.5	1442.7
25°	1784.1	1782.8	1789.9	1784.5	1783.7	1774.5	1748.3	1707.9	1642.5	1557.2	1467.3
27.5°	1679.2	1670.4	1688.3	1711.6	1715.0	1729.5	1730.0	1711.2	1664.2	1591.3	1493.5
30°	1497.7	1506.0	1514.8	1563.5	1590.5	1628.4	1661.3	1673.4	1655.5	1601.8	1510.2
32.5°	1300.4	1327.0	1351.6	1385.3	1424.8	1489.0	1541.0	1586.8	1606.3	1582.6	1510.2
35°	1087.3	1101.4	1140.1	1183.0	1240.0	1290.0	1393.2	1459.8	1519.3	1534.7	1491.0
37.5°	920.8	933.7	947.0	980.3	1044.4	1127.6	1213.0	1300.4	1388.6	1451.9	1449.4
40°	773.4	776.3	788.0	816.7	870.0	944.1	1033.6	1138.9	1253.3	1339.5	1375.7
42.5°	660.2	660.2	674.8	708.1	738.9	793.0	879.6	972.4	1097.7	1208.4	1285.8
45°	574.4	575.3	586.9	610.6	634.8	677.2	741.4	828.8	957.8	1072.3	1180.1
47.5°	504.5	512.4	519.1	531.6	555.7	593.2	639.8	714.3	806.3	931.2	1056.9
50°	459.5	461.2	466.2	473.7	492.4	517.0	557.4	614.0	695.6	806.3	933.2
52.5°	415.4	415.4	420.4	429.6	440.4	460.4	489.5	536.6	597.7	698.1	812.1
55°	378.0	379.2	380.0	387.5	396.7	411.7	434.6	465.4	521.6	601.9	701.4
57.5°	341.3	345.9	344.7	350.5	357.1	368.0	384.2	410.8	453.7	514.9	604.4
60°	310.5	309.7	311.8	314.3	318.9	326.3	341.3	360.9	396.7	447.9	521.2
62.5°	275.6	274.7	277.2	280.1	284.3	290.5	301.4	316.4	344.7	383.0	446.6
65°	243.9	243.1	244.3	246.0	250.6	255.6	263.9	276.4	295.1	328.8	377.5
67.5°	212.3	212.3	213.1	214.8	217.7	221.4	228.1	235.6	254.3	276.8	315.1
70°	180.7	181.1	181.1	182.7	185.2	188.1	193.6	200.2	211.9	231.9	262.7
72.5°	153.2	153.2	152.3	153.2	154.8	156.1	159.4	165.7	174.4	189.0	212.3
75°	121.5	123.6	123.2	122.8	124.0	126.1	129.0	134.0	139.4	149.9	167.3
77.5°	93.2	94.5	94.5	94.9	96.2	97.8	98.7	103.6	108.6	114.9	127.8
80°	68.3	69.1	68.3	68.7	69.5	71.2	72.8	73.7	77.4	82.8	89.1
82.5°	45.8	44.5	46.2	45.8	46.6	47.0	47.9	48.3	50.8	54.1	58.3
85°	24.1	26.2	25.8	26.6	25.8	26.2	26.6	28.3	28.7	30.8	33.3
87.5°	9.2	10.0	10.0	10.0	10.0	10.0	10.8	11.2	12.1	12.5	13.3
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°	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1
2.5°	947.4	943.7	938.2	932.4	926.2	919.9	917.0	913.3	905.8	898.3	892.5
5°	993.2	982.8	968.6	958.2	943.2	929.1	917.8	909.9	897.9	883.3	873.7
7.5°	1044.4	1025.7	1003.2	980.3	957.8	936.6	919.1	904.1	885.4	867.5	852.9
10°	1104.7	1068.5	1037.3	1004.0	970.7	940.7	915.8	894.1	870.0	848.3	830.4
12.5°	1158.0	1116.0	1072.7	1025.7	980.7	942.0	909.9	881.6	852.5	827.5	809.2
15°	1216.7	1157.6	1097.7	1044.4	989.9	942.4	900.4	867.5	834.2	805.9	784.6
17.5°	1284.2	1205.1	1129.7	1053.1	1004.8	943.7	892.0	848.7	814.6	786.3	758.8
20°	1324.1	1245.4	1153.0	1074.4	994.4	931.6	874.1	830.4	790.5	758.0	735.5
22.5°	1345.8	1262.9	1166.4	1085.6	992.4	922.0	860.8	809.2	766.3	733.9	708.5
25°	1376.1	1262.9	1173.4	1076.4	995.7	910.8	841.7	792.1	747.2	709.7	683.1
27.5°	1389.9	1274.2	1174.3	1059.0	975.7	889.5	819.6	767.2	717.2	680.6	657.7
30°	1401.1	1276.2	1157.6	1045.2	952.4	865.8	797.5	738.9	692.2	657.3	633.1
32.5°	1402.0	1270.8	1135.1	1019.4	921.2	837.9	771.3	716.0	667.3	630.2	606.5
35°	1394.5	1257.5	1109.3	979.9	885.0	809.2	742.6	688.5	639.0	603.6	579.4
37.5°	1375.3	1242.5	1085.2	942.8	842.1	768.4	711.8	660.2	611.1	575.7	555.7
40°	1334.5	1218.4	1053.5	903.3	798.8	725.1	675.6	628.1	584.4	547.8	527.8
42.5°	1280.4	1182.2	1015.3	861.2	750.5	679.3	635.6	597.3	552.8	521.2	500.8
45°	1203.8	1133.1	977.0	817.1	702.6	632.7	592.7	561.1	522.8	491.2	473.3
47.5°	1117.2	1073.9	927.4	767.6	652.3	586.5	548.6	523.2	490.8	463.7	445.8
50°	1019.8	1003.6	872.9	717.6	605.2	537.8	502.8	482.9	455.4	433.7	418.3
52.5°	914.1	924.1	815.4	666.8	559.9	491.6	458.3	440.0	422.5	404.2	389.6
55°	806.7	830.4	745.9	611.5	507.8	448.3	415.8	399.2	386.3	370.9	360.5
57.5°	706.0	743.0	673.9	552.4	460.0	402.9	372.1	357.6	348.0	339.7	330.1
60°	608.2	651.0	599.8	497.0	412.1	360.1	332.6	318.4	313.9	307.6	298.5
62.5°	521.6	565.3	527.0	440.0	363.8	319.3	294.3	282.6	276.0	273.9	268.5
65°	440.4	481.2	452.1	380.5	318.0	278.5	256.4	246.0	242.3	241.8	237.7
67.5°	370.1	409.6	383.0	322.6	269.7	237.7	221.0	212.7	209.0	209.4	206.5
70°	305.1	333.0	317.2	269.7	228.9	200.6	187.7	178.6	175.7	175.7	174.8
72.5°	244.8	266.8	254.7	218.5	186.5	164.8	153.6	148.2	145.7	145.3	145.7
75°	191.5	210.6	199.8	171.5	147.4	131.1	121.5	117.8	116.6	115.7	116.1
77.5°	143.2	155.3	148.6	130.3	110.3	99.1	94.5	90.7	89.5	89.9	90.7
80°	101.2	107.8	104.1	92.4	79.1	71.6	68.3	65.4	64.1	65.4	65.4
82.5°	64.1	69.1	65.8	58.3	51.6	46.6	43.3	42.5	42.0	41.2	42.5
85°	35.0	37.5	35.8	33.3	28.7	26.6	24.1	23.7	23.7	23.7	23.7
87.5°	13.7	15.4	13.3	13.3	12.5	10.4	10.4	10.0	9.6	10.0	10.0
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°	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1
2.5°	890.0	884.5	881.2	876.6	871.2	864.1	861.2	864.1	862.5	859.6	860.8
5°	865.4	858.3	849.2	841.7	833.3	822.9	819.6	817.9	815.4	814.2	812.1
7.5°	841.3	830.8	819.6	809.2	797.1	788.0	783.8	780.9	780.1	773.8	771.3
10°	816.3	803.4	792.1	778.0	767.6	755.5	750.5	747.2	743.4	739.3	736.4
12.5°	790.1	777.2	763.0	749.7	739.3	726.0	719.3	715.5	712.6	709.7	706.4
15°	767.2	754.3	734.7	724.7	712.2	698.9	694.7	686.4	687.2	682.2	678.9
17.5°	743.0	723.9	710.1	695.1	686.0	676.4	668.5	659.8	658.5	654.8	653.5
20°	716.0	696.0	686.4	671.0	658.5	648.9	641.9	641.0	638.5	633.1	631.0
22.5°	689.3	673.1	659.8	645.6	634.4	621.9	618.6	619.8	615.2	614.0	609.4
25°	665.2	651.0	634.4	621.1	611.9	604.0	599.4	597.7	596.1	594.8	592.7
27.5°	639.4	624.4	610.2	599.4	590.7	585.3	582.3	578.6	578.2	578.2	577.3
30°	613.6	600.2	590.7	576.9	569.0	565.7	563.2	561.9	563.2	563.2	563.6
32.5°	589.8	576.9	565.7	556.1	548.2	545.7	545.3	545.3	547.0	547.0	548.2
35°	565.3	552.4	542.0	535.3	528.6	528.2	528.6	529.5	531.6	532.0	533.6
37.5°	538.6	528.6	520.7	512.4	510.7	511.6	512.4	513.2	514.1	517.4	517.4
40°	514.1	506.6	498.7	493.3	490.4	492.4	493.7	494.1	496.6	498.7	500.3
42.5°	489.9	482.9	476.6	472.0	470.8	472.5	473.7	474.9	477.4	479.1	482.0
45°	462.9	458.3	452.9	449.1	449.6	452.1	452.1	456.2	457.9	458.7	460.8
47.5°	437.9	432.9	429.2	427.5	427.1	429.2	430.4	433.7	434.6	437.5	439.2
50°	411.3	407.5	404.6	402.5	402.9	403.8	406.7	410.0	410.8	414.2	417.1
52.5°	383.4	380.0	377.5	378.4	379.6	379.6	382.5	384.6	386.7	389.2	392.1
55°	355.9	351.3	351.7	350.5	351.7	354.7	355.9	359.2	360.9	362.1	366.3
57.5°	325.9	325.1	323.8	322.6	325.1	326.3	328.4	330.5	333.4	335.1	338.0
60°	295.1	293.9	293.9	295.5	296.4	298.9	302.2	303.5	304.3	307.6	311.4
62.5°	266.8	265.6	265.2	267.7	267.7	270.2	271.4	273.5	276.8	278.1	283.1
65°	236.4	235.6	235.6	237.7	238.1	242.7	242.7	242.7	244.8	249.3	251.8
67.5°	204.8	205.2	206.5	207.7	209.4	210.6	211.0	213.5	216.9	219.8	224.8
70°	173.2	175.2	177.7	177.3	178.6	180.7	181.1	183.6	186.5	190.2	196.1
72.5°	144.9	146.1	148.6	148.6	150.3	151.5	153.6	155.3	159.0	162.3	164.8
75°	116.6	117.0	119.0	120.3	121.5	122.4	124.5	127.4	129.5	132.4	136.1
77.5°	91.6	90.7	92.4	92.8	93.7	95.3	97.0	99.9	101.6	104.9	106.1
80°	64.9	66.6	67.0	67.4	68.3	70.3	71.6	72.8	74.5	77.4	78.7
82.5°	42.9	43.7	45.0	45.4	46.2	46.6	47.0	49.1	50.4	51.2	55.4
85°	25.0	26.2	25.4	25.4	26.2	26.6	28.3	28.3	30.0	29.1	31.2
87.5°	10.8	10.4	10.4	10.8	10.4	10.0	11.2	11.2	10.8	11.2	11.2
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: P243348

CATALOG NUMBER: S123DR-H775D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	909.1	909.1	909.1	909.1
2.5°	858.7	858.7	855.4	856.7
5°	808.0	809.6	805.5	804.2
7.5°	770.5	768.8	765.9	765.9
10°	733.9	732.2	730.9	730.9
12.5°	702.2	700.6	698.1	700.1
15°	673.9	674.3	672.7	672.7
17.5°	652.3	648.5	647.3	646.9
20°	626.5	627.3	625.6	622.7
22.5°	610.2	608.2	606.5	606.1
25°	593.6	591.5	591.1	589.4
27.5°	576.9	577.3	576.1	576.1
30°	563.2	564.4	563.2	563.6
32.5°	549.5	549.5	549.5	547.8
35°	534.5	534.9	534.5	533.6
37.5°	519.1	519.1	519.5	520.3
40°	502.0	502.0	502.8	502.8
42.5°	481.6	483.7	484.9	482.9
45°	463.3	463.7	464.1	463.7
47.5°	442.9	441.6	442.1	442.9
50°	417.5	420.4	420.4	417.9
52.5°	392.9	393.8	395.4	395.4
55°	368.8	369.2	369.6	370.5
57.5°	341.3	341.7	341.7	341.3
60°	313.9	316.4	315.9	316.4
62.5°	284.3	288.0	289.3	288.9
65°	256.4	257.2	259.3	262.2
67.5°	226.9	228.9	232.3	231.4
70°	197.7	200.6	201.5	203.1
72.5°	168.6	172.3	173.2	174.0
75°	140.3	141.9	143.6	143.2
77.5°	109.5	112.0	114.9	113.2
80°	82.0	82.4	84.9	84.1
82.5°	54.1	57.4	57.4	55.8
85°	31.6	31.6	31.6	31.6
87.5°	10.8	10.4	11.2	10.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)