

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: P243333

Luminaire Tested: **S123DR-H775D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243333
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-H775D840-X4F0-XX-UDD-A-W
Description: DEFINE 3 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: 3102.9 lumens
Efficiency: N/A
Efficacy: 131.5 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

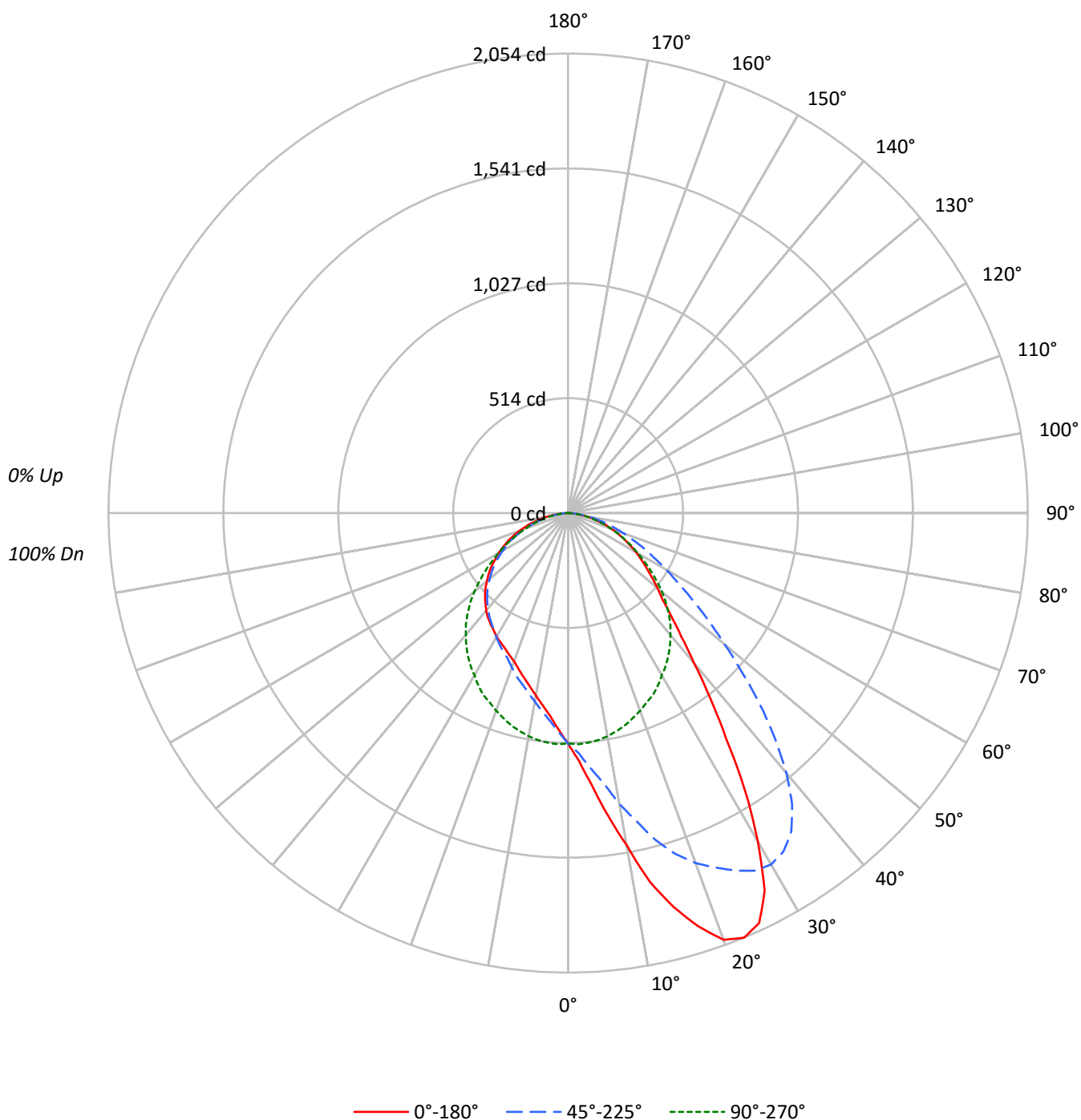
Input Watts (W): 23.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	12480	12480	12480
5°	14867	12539	11082
10°	18567	12463	10189
15°	22882	12328	9560
20°	26184	12132	9096
25°	27023	11998	8927
30°	23739	11712	8934
35°	18220	11537	8943
40°	13859	11257	9011
45°	11151	10894	9003
50°	9813	10311	8925
55°	9045	9554	8867
60°	8526	8742	8686
65°	7922	7991	8518
70°	7251	7166	8151
75°	6449	6247	7596
80°	5396	5165	6645
85°	3797	3741	4979

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	101.3	3.3
10°-20°	325.2	10.5
20°-30°	537.1	17.3
30°-40°	614.8	19.8
40°-50°	557.1	18.0
50°-60°	450.1	14.5
60°-70°	313.6	10.1
70°-80°	164.5	5.3
80°-90°	39.2	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°	963.6	31.1
0°-40°	1578.4	50.9
0°-60°	2585.6	83.3
0°-90°	3102.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3102.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1030	1030	1030	1030	1030	
5°	1222	1143	1030	932	911	126
15°	1823	1514	982	792	762	519
25°	2020	1764	897	684	668	903
35°	1231	1738	780	598	604	780
45°	650	1214	636	512	525	513
55°	428	682	452	402	420	385
65°	276	372	279	275	297	274
75°	138	170	133	139	162	147
85°	27	35	27	30	36	35
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°	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6
2.5°	1108.8	1111.1	1107.3	1109.7	1104.0	1100.7	1095.6	1093.2	1081.9	1073.9	1071.0
5°	1221.9	1221.9	1222.8	1217.2	1210.6	1198.8	1183.2	1173.3	1162.0	1142.7	1132.8
7.5°	1364.3	1357.2	1352.5	1342.1	1333.2	1313.8	1296.9	1276.6	1250.2	1218.1	1201.2
10°	1508.5	1516.1	1511.3	1500.5	1477.4	1445.8	1420.8	1391.6	1350.6	1319.5	1275.2
12.5°	1688.6	1678.7	1671.2	1654.7	1629.2	1595.7	1557.1	1513.7	1460.9	1409.5	1360.0
15°	1823.4	1824.8	1824.4	1802.7	1777.7	1732.4	1696.6	1624.5	1557.5	1514.2	1432.1
17.5°	1937.5	1943.6	1936.6	1904.0	1881.9	1855.0	1809.3	1729.1	1668.3	1598.1	1507.6
20°	2029.9	2030.8	2019.5	1995.5	1970.0	1939.9	1879.5	1818.2	1758.8	1664.6	1578.3
22.5°	2054.4	2056.8	2054.4	2044.0	2023.3	1991.2	1946.0	1889.4	1814.5	1714.1	1633.9
25°	2020.5	2019.1	2027.1	2020.9	2020.0	2009.6	1979.9	1934.2	1860.2	1763.6	1661.7
27.5°	1901.7	1891.8	1912.0	1938.4	1942.2	1958.7	1959.2	1938.0	1884.7	1802.2	1691.4
30°	1696.1	1705.6	1715.5	1770.6	1801.3	1844.2	1881.4	1895.1	1874.8	1814.0	1710.3
32.5°	1472.7	1502.9	1530.7	1568.9	1613.6	1686.2	1745.2	1797.0	1819.2	1792.3	1710.3
35°	1231.3	1247.4	1291.2	1339.8	1404.3	1460.9	1577.8	1653.2	1720.7	1738.1	1688.6
37.5°	1042.8	1057.4	1072.5	1110.2	1182.8	1277.1	1373.7	1472.7	1572.6	1644.3	1641.5
40°	875.9	879.2	892.4	924.9	985.3	1069.2	1170.5	1289.8	1419.4	1517.0	1558.0
42.5°	747.7	747.7	764.2	801.9	836.8	898.0	996.1	1101.2	1243.1	1368.5	1456.2
45°	650.5	651.5	664.7	691.6	718.9	767.0	839.6	938.6	1084.7	1214.4	1336.5
47.5°	571.4	580.3	587.9	602.0	629.3	671.8	724.6	808.9	913.1	1054.5	1196.9
50°	520.4	522.3	528.0	536.5	557.7	585.5	631.2	695.3	787.7	913.1	1056.9
52.5°	470.5	470.5	476.1	486.5	498.8	521.4	554.4	607.7	676.9	790.6	919.7
55°	428.0	429.5	430.4	438.9	449.3	466.2	492.2	527.0	590.7	681.7	794.3
57.5°	386.6	391.7	390.3	396.9	404.5	416.7	435.1	465.3	513.8	583.1	684.5
60°	351.7	350.7	353.1	355.9	361.1	369.6	386.6	408.7	449.3	507.2	590.2
62.5°	312.1	311.1	314.0	317.3	322.0	329.0	341.3	358.3	390.3	433.7	505.8
65°	276.2	275.3	276.7	278.6	283.8	289.4	298.9	313.0	334.2	372.4	427.6
67.5°	240.4	240.4	241.4	243.2	246.5	250.8	258.3	266.8	288.0	313.5	356.9
70°	204.6	205.1	205.1	206.9	209.8	213.1	219.2	226.7	239.9	262.6	297.5
72.5°	173.5	173.5	172.5	173.5	175.4	176.8	180.6	187.6	197.5	214.0	240.4
75°	137.7	140.0	139.5	139.1	140.5	142.8	146.1	151.8	157.9	169.7	189.5
77.5°	105.6	107.0	107.0	107.5	108.9	110.8	111.7	117.4	123.0	130.1	144.7
80°	77.3	78.3	77.3	77.8	78.7	80.6	82.5	83.4	87.7	93.8	100.9
82.5°	51.9	50.4	52.3	51.9	52.8	53.3	54.2	54.7	57.5	61.3	66.0
85°	27.3	29.7	29.2	30.2	29.2	29.7	30.2	32.1	32.5	34.9	37.7
87.5°	10.4	11.3	11.3	11.3	11.3	11.3	12.3	12.7	13.7	14.1	15.1
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°	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6
2.5°	1072.9	1068.7	1062.6	1056.0	1048.9	1041.8	1038.5	1034.3	1025.8	1017.3	1010.7
5°	1124.8	1113.0	1097.0	1085.2	1068.2	1052.2	1039.5	1030.5	1016.8	1000.3	989.5
7.5°	1182.8	1161.6	1136.1	1110.2	1084.7	1060.7	1040.9	1023.9	1002.7	982.4	965.9
10°	1251.1	1210.1	1174.8	1137.0	1099.3	1065.4	1037.1	1012.6	985.3	960.7	940.5
12.5°	1311.5	1263.9	1214.8	1161.6	1110.6	1066.8	1030.5	998.5	965.5	937.2	916.4
15°	1377.9	1311.0	1243.1	1182.8	1121.0	1067.3	1019.7	982.4	944.7	912.7	888.6
17.5°	1454.3	1364.7	1279.4	1192.7	1138.0	1068.7	1010.2	961.2	922.6	890.5	859.4
20°	1499.6	1410.5	1305.8	1216.7	1126.2	1055.0	990.0	940.5	895.2	858.4	833.0
22.5°	1524.1	1430.3	1320.9	1229.4	1123.8	1044.2	974.9	916.4	867.9	831.1	802.3
25°	1558.5	1430.3	1328.9	1219.1	1127.6	1031.4	953.2	897.1	846.2	803.8	773.6
27.5°	1574.0	1443.0	1329.9	1199.3	1105.0	1007.4	928.2	868.8	812.2	770.8	744.8
30°	1586.8	1445.3	1311.0	1183.7	1078.6	980.5	903.2	836.8	784.0	744.4	717.0
32.5°	1587.7	1439.2	1285.5	1154.5	1043.2	949.0	873.5	810.8	755.7	713.7	686.8
35°	1579.2	1424.1	1256.3	1109.7	1002.2	916.4	841.0	779.7	723.6	683.5	656.2
37.5°	1557.5	1407.2	1229.0	1067.7	953.7	870.2	806.1	747.7	692.0	652.0	629.3
40°	1511.3	1379.8	1193.1	1023.0	904.6	821.2	765.1	711.4	661.9	620.4	597.8
42.5°	1450.1	1338.8	1149.8	975.4	850.0	769.3	719.8	676.5	626.0	590.2	567.1
45°	1363.3	1283.2	1106.4	925.4	795.7	716.5	671.3	635.5	592.1	556.3	536.0
47.5°	1265.3	1216.2	1050.3	869.3	738.7	664.2	621.3	592.6	555.8	525.2	504.9
50°	1155.0	1136.6	988.6	812.7	685.4	609.1	569.5	546.8	515.7	491.2	473.8
52.5°	1035.2	1046.5	923.5	755.2	634.0	556.7	519.0	498.3	478.5	457.7	441.2
55°	913.6	940.5	844.8	692.5	575.1	507.7	470.9	452.1	437.5	420.0	408.2
57.5°	799.5	841.5	763.2	625.6	520.9	456.3	421.4	404.9	394.1	384.7	373.8
60°	688.7	737.3	679.3	562.9	466.7	407.8	376.7	360.6	355.4	348.4	338.0
62.5°	590.7	640.2	596.8	498.3	412.0	361.6	333.3	320.1	312.5	310.2	304.1
65°	498.8	545.0	512.0	430.9	360.2	315.4	290.4	278.6	274.4	273.9	269.2
67.5°	419.1	463.9	433.7	365.3	305.5	269.2	250.3	240.9	236.6	237.1	233.8
70°	345.5	377.1	359.2	305.5	259.3	227.2	212.6	202.2	198.9	198.9	198.0
72.5°	277.2	302.2	288.5	247.5	211.2	186.7	174.0	167.8	165.0	164.5	165.0
75°	216.8	238.5	226.3	194.2	166.9	148.5	137.7	133.4	132.0	131.1	131.5
77.5°	162.2	175.8	168.3	147.6	124.9	112.2	107.0	102.8	101.4	101.8	102.8
80°	114.6	122.1	117.9	104.7	89.6	81.1	77.3	74.0	72.6	74.0	74.0
82.5°	72.6	78.3	74.5	66.0	58.5	52.8	49.0	48.1	47.6	46.7	48.1
85°	39.6	42.4	40.5	37.7	32.5	30.2	27.3	26.9	26.9	26.9	26.9
87.5°	15.6	17.4	15.1	15.1	14.1	11.8	11.8	11.3	10.8	11.3	11.3
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6	1029.6
2.5°	1007.9	1001.8	998.0	992.8	986.7	978.7	975.4	978.7	976.8	973.5	974.9
5°	980.1	972.1	961.7	953.2	943.8	932.0	928.2	926.3	923.5	922.1	919.7
7.5°	952.7	940.9	928.2	916.4	902.8	892.4	887.7	884.4	883.4	876.4	873.5
10°	924.4	909.8	897.1	881.1	869.3	855.6	850.0	846.2	841.9	837.2	833.9
12.5°	894.7	880.1	864.1	849.0	837.2	822.1	814.6	810.4	807.1	803.8	800.0
15°	868.8	854.2	832.0	820.7	806.6	791.5	786.8	777.4	778.3	772.6	768.9
17.5°	841.5	819.8	804.2	787.3	776.9	766.0	757.1	747.2	745.8	741.5	740.1
20°	810.8	788.2	777.4	759.9	745.8	734.9	726.9	726.0	723.1	717.0	714.7
22.5°	780.7	762.3	747.2	731.2	718.4	704.3	700.5	701.9	696.7	695.3	690.1
25°	753.3	737.3	718.4	703.3	693.0	684.0	678.8	676.9	675.1	673.6	671.3
27.5°	724.1	707.1	691.1	678.8	668.9	662.8	659.5	655.3	654.8	654.8	653.8
30°	694.9	679.8	668.9	653.4	644.4	640.6	637.8	636.4	637.8	637.8	638.3
32.5°	668.0	653.4	640.6	629.8	620.8	618.0	617.5	617.5	619.4	619.4	620.8
35°	640.2	625.6	613.8	606.2	598.7	598.2	598.7	599.6	602.0	602.5	604.4
37.5°	610.0	598.7	589.7	580.3	578.4	579.4	580.3	581.3	582.2	586.0	586.0
40°	582.2	573.7	564.8	558.6	555.3	557.7	559.1	559.6	562.4	564.8	566.6
42.5°	554.9	546.8	539.8	534.6	533.2	535.1	536.5	537.9	540.7	542.6	545.9
45°	524.2	519.0	512.9	508.7	509.1	512.0	512.0	516.7	518.6	519.5	521.9
47.5°	495.9	490.3	486.0	484.1	483.7	486.0	487.4	491.2	492.2	495.5	497.3
50°	465.8	461.5	458.2	455.9	456.3	457.3	460.6	464.3	465.3	469.1	472.4
52.5°	434.2	430.4	427.6	428.5	429.9	429.9	433.2	435.6	437.9	440.8	444.1
55°	403.1	397.9	398.3	396.9	398.3	401.6	403.1	406.8	408.7	410.1	414.8
57.5°	369.1	368.2	366.8	365.3	368.2	369.6	371.9	374.3	377.6	379.5	382.8
60°	334.2	332.8	332.8	334.7	335.6	338.5	342.2	343.7	344.6	348.4	352.6
62.5°	302.2	300.8	300.3	303.1	303.1	305.9	307.4	309.7	313.5	314.9	320.6
65°	267.8	266.8	266.8	269.2	269.6	274.8	274.8	274.8	277.2	282.4	285.2
67.5°	231.9	232.4	233.8	235.2	237.1	238.5	239.0	241.8	245.6	248.9	254.6
70°	196.1	198.5	201.3	200.8	202.2	204.6	205.1	207.9	211.2	215.4	222.0
72.5°	164.1	165.5	168.3	168.3	170.2	171.6	174.0	175.8	180.1	183.9	186.7
75°	132.0	132.5	134.8	136.2	137.7	138.6	141.0	144.3	146.6	149.9	154.2
77.5°	103.7	102.8	104.7	105.1	106.1	108.0	109.8	113.1	115.0	118.8	120.2
80°	73.5	75.4	75.9	76.4	77.3	79.7	81.1	82.5	84.4	87.7	89.1
82.5°	48.6	49.5	50.9	51.4	52.3	52.8	53.3	55.6	57.0	58.0	62.7
85°	28.3	29.7	28.8	28.8	29.7	30.2	32.1	32.1	33.9	33.0	35.4
87.5°	12.3	11.8	11.8	12.3	11.8	11.3	12.7	12.7	12.3	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: P243333

CATALOG NUMBER: S123DR-H775D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1029.6	1029.6	1029.6	1029.6
2.5°	972.5	972.5	968.8	970.2
5°	915.0	916.9	912.2	910.8
7.5°	872.6	870.7	867.4	867.4
10°	831.1	829.2	827.8	827.8
12.5°	795.3	793.4	790.6	792.9
15°	763.2	763.7	761.8	761.8
17.5°	738.7	734.5	733.0	732.6
20°	709.5	710.4	708.5	705.2
22.5°	691.1	688.7	686.8	686.4
25°	672.2	669.9	669.4	667.5
27.5°	653.4	653.8	652.4	652.4
30°	637.8	639.2	637.8	638.3
32.5°	622.3	622.3	622.3	620.4
35°	605.3	605.8	605.3	604.4
37.5°	587.9	587.9	588.3	589.3
40°	568.5	568.5	569.5	569.5
42.5°	545.4	547.8	549.2	546.8
45°	524.7	525.2	525.6	525.2
47.5°	501.6	500.2	500.6	501.6
50°	472.8	476.1	476.1	473.3
52.5°	445.0	446.0	447.8	447.8
55°	417.7	418.1	418.6	419.6
57.5°	386.6	387.0	387.0	386.6
60°	355.4	358.3	357.8	358.3
62.5°	322.0	326.2	327.6	327.2
65°	290.4	291.3	293.7	297.0
67.5°	256.9	259.3	263.0	262.1
70°	223.9	227.2	228.2	230.0
72.5°	190.9	195.2	196.1	197.1
75°	158.9	160.8	162.6	162.2
77.5°	124.0	126.8	130.1	128.2
80°	92.9	93.3	96.2	95.2
82.5°	61.3	65.1	65.1	63.2
85°	35.8	35.8	35.8	35.8
87.5°	12.3	11.8	12.7	12.3
90°	0.0	0.0	0.0	0.0

(END OF REPORT)