

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: P243320

Luminaire Tested: **S123DR-H1165D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243320
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-H1165D927-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 2700K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3667.0 lumens
Efficiency: N/A
Efficacy: 97.3 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

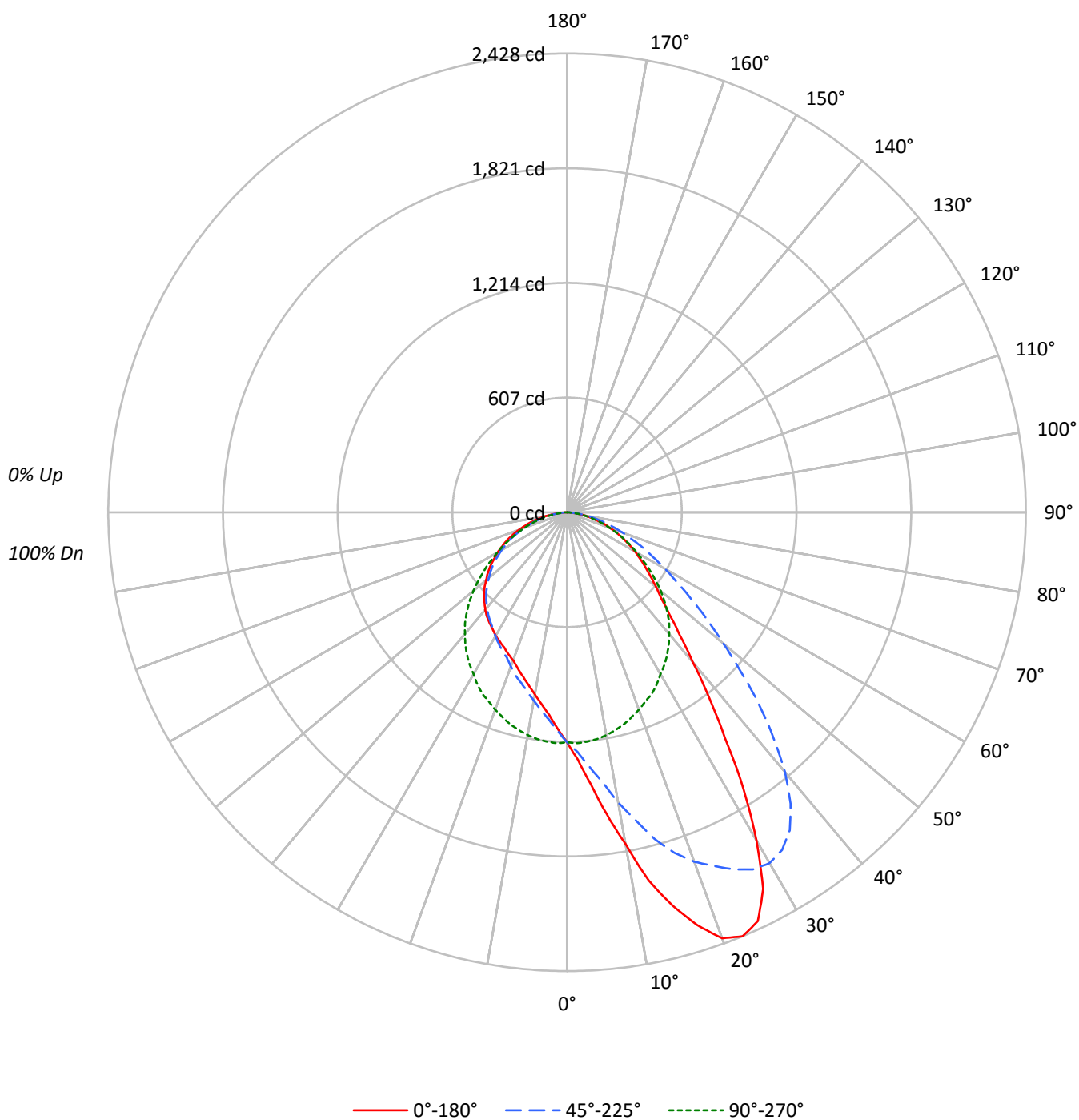
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					10
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°	14748	14748	14748
5°	17570	14818	13096
10°	21942	14729	12041
15°	27041	14569	11298
20°	30944	14336	10750
25°	31935	14179	10551
30°	28056	13841	10557
35°	21533	13636	10568
40°	16379	13303	10649
45°	13179	12874	10638
50°	11597	12186	10547
55°	10691	11291	10478
60°	10075	10332	10264
65°	9364	9445	10067
70°	8569	8470	9636
75°	7620	7386	8973
80°	6380	6108	7853
85°	4492	4423	5883

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	119.7	3.3
10°-20°	384.3	10.5
20°-30°	634.8	17.3
30°-40°	726.5	19.8
40°-50°	658.4	18.0
50°-60°	531.9	14.5
60°-70°	370.6	10.1
70°-80°	194.4	5.3
80°-90°	46.3	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°	1138.8	31.1
0°-40°	1865.3	50.9
0°-60°	3055.6	83.3
0°-90°	3667.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3667.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1217	1217	1217	1217	1217	
5°	1444	1350	1218	1101	1076	149
15°	2155	1789	1161	935	900	613
25°	2388	2084	1060	808	789	1067
35°	1455	2054	922	707	714	922
45°	769	1435	751	605	621	606
55°	506	806	534	475	496	454
65°	326	440	329	325	351	324
75°	163	201	158	164	192	174
85°	32	41	32	36	42	41
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°	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7
2.5°	1310.3	1313.1	1308.6	1311.4	1304.7	1300.8	1294.7	1291.9	1278.6	1269.1	1265.8
5°	1444.0	1444.0	1445.1	1438.5	1430.7	1416.7	1398.3	1386.6	1373.3	1350.4	1338.7
7.5°	1612.3	1603.9	1598.3	1586.1	1575.5	1552.7	1532.6	1508.7	1477.5	1439.6	1419.5
10°	1782.7	1791.7	1786.1	1773.3	1746.0	1708.7	1679.1	1644.6	1596.1	1559.3	1507.0
12.5°	1995.6	1983.9	1975.0	1955.5	1925.4	1885.8	1840.1	1788.9	1726.5	1665.8	1607.3
15°	2154.9	2156.6	2156.0	2130.4	2100.9	2047.4	2005.0	1919.8	1840.7	1789.4	1692.5
17.5°	2289.7	2297.0	2288.6	2250.2	2224.0	2192.2	2138.2	2043.5	1971.6	1888.6	1781.6
20°	2398.9	2400.0	2386.7	2358.2	2328.2	2292.5	2221.2	2148.8	2078.6	1967.2	1865.2
22.5°	2427.9	2430.7	2427.9	2415.6	2391.1	2353.2	2299.7	2232.9	2144.3	2025.6	1930.9
25°	2387.8	2386.1	2395.6	2388.3	2387.2	2375.0	2339.9	2285.8	2198.4	2084.1	1963.8
27.5°	2247.4	2235.7	2259.6	2290.8	2295.3	2314.8	2315.3	2290.3	2227.3	2129.8	1998.9
30°	2004.5	2015.6	2027.3	2092.5	2128.7	2179.4	2223.4	2239.6	2215.6	2143.8	2021.2
32.5°	1740.4	1776.1	1808.9	1854.1	1907.0	1992.8	2062.4	2123.7	2149.9	2118.1	2021.2
35°	1455.2	1474.1	1525.9	1583.3	1659.6	1726.5	1864.6	1953.8	2033.4	2054.1	1995.6
37.5°	1232.3	1249.6	1267.4	1312.0	1397.8	1509.2	1623.4	1740.4	1858.5	1943.2	1939.9
40°	1035.1	1039.0	1054.6	1093.0	1164.4	1263.5	1383.3	1524.3	1677.5	1792.8	1841.2
42.5°	883.6	883.6	903.1	947.6	988.9	1061.3	1177.2	1301.4	1469.1	1617.3	1720.9
45°	768.8	769.9	785.5	817.3	849.6	906.4	992.2	1109.2	1281.9	1435.1	1579.4
47.5°	675.2	685.8	694.7	711.4	743.7	793.9	856.3	956.0	1079.1	1246.3	1414.5
50°	615.0	617.3	624.0	634.0	659.1	691.9	746.0	821.7	930.9	1079.1	1249.0
52.5°	556.0	556.0	562.7	574.9	589.4	616.2	655.2	718.1	800.0	934.3	1086.9
55°	505.9	507.5	508.6	518.7	530.9	551.0	581.6	622.8	698.1	805.6	938.7
57.5°	456.8	463.0	461.3	469.1	478.0	492.5	514.2	549.9	607.2	689.1	808.9
60°	415.6	414.5	417.3	420.6	426.7	436.8	456.8	483.0	530.9	599.4	697.5
62.5°	368.8	367.7	371.0	374.9	380.5	388.9	403.3	423.4	461.3	512.5	597.8
65°	326.5	325.4	327.0	329.3	335.4	342.1	353.2	369.9	395.0	440.1	505.3
67.5°	284.1	284.1	285.2	287.5	291.4	296.4	305.3	315.3	340.4	370.5	421.7
70°	241.8	242.3	242.3	244.6	247.9	251.8	259.1	268.0	283.6	310.3	351.5
72.5°	205.0	205.0	203.9	205.0	207.2	208.9	213.4	221.7	233.4	252.9	284.1
75°	162.7	165.5	164.9	164.3	166.0	168.8	172.7	179.4	186.6	200.6	224.0
77.5°	124.8	126.5	126.5	127.0	128.7	130.9	132.0	138.7	145.4	153.8	171.0
80°	91.4	92.5	91.4	91.9	93.0	95.3	97.5	98.6	103.6	110.9	119.2
82.5°	61.3	59.6	61.8	61.3	62.4	63.0	64.1	64.6	68.0	72.4	78.0
85°	32.3	35.1	34.5	35.7	34.5	35.1	35.7	37.9	38.4	41.2	44.6
87.5°	12.3	13.4	13.4	13.4	13.4	13.4	14.5	15.0	16.2	16.7	17.8
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°	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7
2.5°	1268.0	1263.0	1255.7	1247.9	1239.6	1231.2	1227.3	1222.3	1212.3	1202.2	1194.4
5°	1329.3	1315.3	1296.4	1282.5	1262.4	1243.5	1228.4	1217.8	1201.7	1182.2	1169.4
7.5°	1397.8	1372.7	1342.6	1312.0	1281.9	1253.5	1230.1	1210.0	1185.0	1161.0	1141.5
10°	1478.6	1430.1	1388.3	1343.7	1299.2	1259.1	1225.6	1196.7	1164.4	1135.4	1111.4
12.5°	1549.9	1493.6	1435.7	1372.7	1312.5	1260.7	1217.8	1180.0	1141.0	1107.5	1083.0
15°	1628.4	1549.3	1469.1	1397.8	1324.8	1261.3	1205.0	1161.0	1116.4	1078.6	1050.2
17.5°	1718.7	1612.8	1512.0	1409.5	1344.9	1263.0	1193.9	1135.9	1090.3	1052.4	1015.6
20°	1772.2	1666.9	1543.2	1437.9	1330.9	1246.8	1169.9	1111.4	1058.0	1014.5	984.4
22.5°	1801.1	1690.3	1561.0	1452.9	1328.1	1234.0	1152.1	1083.0	1025.6	982.2	948.2
25°	1841.8	1690.3	1570.5	1440.7	1332.6	1219.0	1126.5	1060.2	1000.0	949.9	914.2
27.5°	1860.2	1705.3	1571.6	1417.3	1305.9	1190.5	1096.9	1026.8	959.9	910.9	880.2
30°	1875.2	1708.1	1549.3	1398.9	1274.7	1158.8	1067.4	988.9	926.5	879.7	847.4
32.5°	1876.3	1700.9	1519.2	1364.4	1232.9	1121.5	1032.3	958.2	893.0	843.5	811.7
35°	1866.3	1683.0	1484.7	1311.4	1184.4	1083.0	993.9	921.5	855.2	807.8	775.5
37.5°	1840.7	1663.0	1452.4	1261.9	1127.0	1028.4	952.7	883.6	817.8	770.5	743.7
40°	1786.1	1630.7	1410.0	1208.9	1069.1	970.5	904.2	840.7	782.2	733.2	706.4
42.5°	1713.7	1582.2	1358.8	1152.7	1004.5	909.2	850.7	799.5	739.8	697.5	670.2
45°	1611.2	1516.5	1307.5	1093.6	940.4	846.8	793.3	751.0	699.7	657.4	633.4
47.5°	1495.3	1437.3	1241.2	1027.3	873.0	785.0	734.3	700.3	656.8	620.6	596.7
50°	1364.9	1343.2	1168.3	960.5	810.0	719.8	673.0	646.2	609.5	580.5	559.9
52.5°	1223.4	1236.8	1091.4	892.5	749.3	657.9	613.4	588.9	565.5	541.0	521.5
55°	1079.7	1111.4	998.3	818.4	679.7	600.0	556.6	534.3	517.0	496.4	482.5
57.5°	944.9	994.4	902.0	739.3	615.6	539.3	498.1	478.6	465.7	454.6	441.8
60°	813.9	871.3	802.8	665.2	551.5	481.9	445.1	426.2	420.1	411.7	399.4
62.5°	698.1	756.6	705.3	588.9	486.9	427.3	393.9	378.3	369.4	366.6	359.3
65°	589.4	644.0	605.0	509.2	425.6	372.7	343.2	329.3	324.2	323.7	318.1
67.5°	495.3	548.2	512.5	431.8	361.0	318.1	295.8	284.7	279.7	280.2	276.3
70°	408.4	445.7	424.5	361.0	306.4	268.5	251.3	239.0	235.1	235.1	234.0
72.5°	327.6	357.1	341.0	292.5	249.6	220.6	205.6	198.3	195.0	194.4	195.0
75°	256.3	281.9	267.4	229.5	197.2	175.5	162.7	157.7	156.0	154.9	155.4
77.5°	191.6	207.8	198.9	174.4	147.6	132.6	126.5	121.4	119.8	120.3	121.4
80°	135.4	144.3	139.3	123.7	105.9	95.8	91.4	87.5	85.8	87.5	87.5
82.5°	85.8	92.5	88.0	78.0	69.1	62.4	57.9	56.8	56.3	55.2	56.8
85°	46.8	50.1	47.9	44.6	38.4	35.7	32.3	31.8	31.8	31.8	31.8
87.5°	18.4	20.6	17.8	17.8	16.7	13.9	13.9	13.4	12.8	13.4	13.4
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°	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7	1216.7
2.5°	1191.1	1183.9	1179.4	1173.3	1166.0	1156.6	1152.7	1156.6	1154.3	1150.4	1152.1
5°	1158.2	1148.8	1136.5	1126.5	1115.3	1101.4	1096.9	1094.7	1091.4	1089.7	1086.9
7.5°	1125.9	1112.0	1096.9	1083.0	1066.9	1054.6	1049.0	1045.1	1044.0	1035.7	1032.3
10°	1092.5	1075.2	1060.2	1041.2	1027.3	1011.2	1004.5	1000.0	995.0	989.4	985.5
12.5°	1057.4	1040.1	1021.2	1003.4	989.4	971.6	962.7	957.7	953.8	949.9	945.4
15°	1026.8	1009.5	983.3	969.9	953.2	935.4	929.8	918.7	919.8	913.1	908.6
17.5°	994.4	968.8	950.4	930.4	918.1	905.3	894.7	883.0	881.3	876.3	874.7
20°	958.2	931.5	918.7	898.1	881.3	868.5	859.1	857.9	854.6	847.4	844.6
22.5°	922.6	900.8	883.0	864.1	849.0	832.3	827.9	829.5	823.4	821.7	815.6
25°	890.3	871.3	849.0	831.2	819.0	808.4	802.2	800.0	797.8	796.1	793.3
27.5°	855.7	835.7	816.7	802.2	790.5	783.3	779.4	774.4	773.8	773.8	772.7
30°	821.2	803.4	790.5	772.2	761.6	757.1	753.8	752.1	753.8	753.8	754.3
32.5°	789.4	772.2	757.1	744.3	733.7	730.4	729.8	729.8	732.0	732.0	733.7
35°	756.6	739.3	725.4	716.4	707.5	707.0	707.5	708.6	711.4	712.0	714.2
37.5°	720.9	707.5	696.9	685.8	683.6	684.7	685.8	686.9	688.0	692.5	692.5
40°	688.0	678.0	667.4	660.2	656.3	659.1	660.7	661.3	664.6	667.4	669.6
42.5°	655.7	646.2	637.9	631.8	630.1	632.3	634.0	635.7	639.0	641.2	645.1
45°	619.5	613.4	606.1	601.1	601.7	605.0	605.0	610.6	612.8	613.9	616.7
47.5°	586.1	579.4	574.4	572.2	571.6	574.4	576.1	580.5	581.6	585.5	587.8
50°	550.4	545.4	541.5	538.7	539.3	540.4	544.3	548.8	549.9	554.3	558.2
52.5°	513.1	508.6	505.3	506.4	508.1	508.1	512.0	514.8	517.6	520.9	524.8
55°	476.3	470.2	470.8	469.1	470.8	474.7	476.3	480.8	483.0	484.7	490.3
57.5°	436.2	435.1	433.4	431.8	435.1	436.8	439.6	442.3	446.2	448.5	452.4
60°	395.0	393.3	393.3	395.5	396.7	400.0	404.5	406.1	407.2	411.7	416.7
62.5°	357.1	355.4	354.9	358.2	358.2	361.6	363.2	366.0	370.5	372.1	378.8
65°	316.4	315.3	315.3	318.1	318.7	324.8	324.8	324.8	327.6	333.7	337.1
67.5°	274.1	274.7	276.3	278.0	280.2	281.9	282.5	285.8	290.3	294.2	300.8
70°	231.8	234.5	237.9	237.3	239.0	241.8	242.3	245.7	249.6	254.6	262.4
72.5°	193.9	195.5	198.9	198.9	201.1	202.8	205.6	207.8	212.8	217.3	220.6
75°	156.0	156.5	159.3	161.0	162.7	163.8	166.6	170.5	173.3	177.2	182.2
77.5°	122.6	121.4	123.7	124.2	125.3	127.6	129.8	133.7	135.9	140.4	142.1
80°	86.9	89.1	89.7	90.3	91.4	94.2	95.8	97.5	99.7	103.6	105.3
82.5°	57.4	58.5	60.2	60.7	61.8	62.4	63.0	65.7	67.4	68.5	74.1
85°	33.4	35.1	34.0	34.0	35.1	35.7	37.9	37.9	40.1	39.0	41.8
87.5°	14.5	13.9	13.9	14.5	13.9	13.4	15.0	15.0	14.5	15.0	15.0
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: P243320

CATALOG NUMBER: S123DR-H1165D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1216.7	1216.7	1216.7	1216.7
2.5°	1149.3	1149.3	1144.9	1146.5
5°	1081.3	1083.6	1078.0	1076.3
7.5°	1031.2	1029.0	1025.1	1025.1
10°	982.2	980.0	978.3	978.3
12.5°	939.8	937.6	934.3	937.1
15°	902.0	902.5	900.3	900.3
17.5°	873.0	868.0	866.3	865.7
20°	838.4	839.6	837.3	833.4
22.5°	816.7	813.9	811.7	811.2
25°	794.4	791.7	791.1	788.9
27.5°	772.2	772.7	771.0	771.0
30°	753.8	755.4	753.8	754.3
32.5°	735.4	735.4	735.4	733.2
35°	715.3	715.9	715.3	714.2
37.5°	694.7	694.7	695.3	696.4
40°	671.9	671.9	673.0	673.0
42.5°	644.6	647.4	649.0	646.2
45°	620.1	620.6	621.2	620.6
47.5°	592.8	591.1	591.6	592.8
50°	558.8	562.7	562.7	559.3
52.5°	525.9	527.0	529.3	529.3
55°	493.6	494.2	494.7	495.8
57.5°	456.8	457.4	457.4	456.8
60°	420.1	423.4	422.8	423.4
62.5°	380.5	385.5	387.2	386.6
65°	343.2	344.3	347.1	351.0
67.5°	303.6	306.4	310.9	309.8
70°	264.6	268.5	269.6	271.9
72.5°	225.6	230.6	231.8	232.9
75°	187.7	190.0	192.2	191.6
77.5°	146.5	149.9	153.8	151.5
80°	109.8	110.3	113.7	112.5
82.5°	72.4	76.9	76.9	74.7
85°	42.3	42.3	42.3	42.3
87.5°	14.5	13.9	15.0	14.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)