

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: P243340

Luminaire Tested: **S123DR-H1165D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243340
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-H1165D930-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3774.0 lumens
Efficiency: N/A
Efficacy: 100.1 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

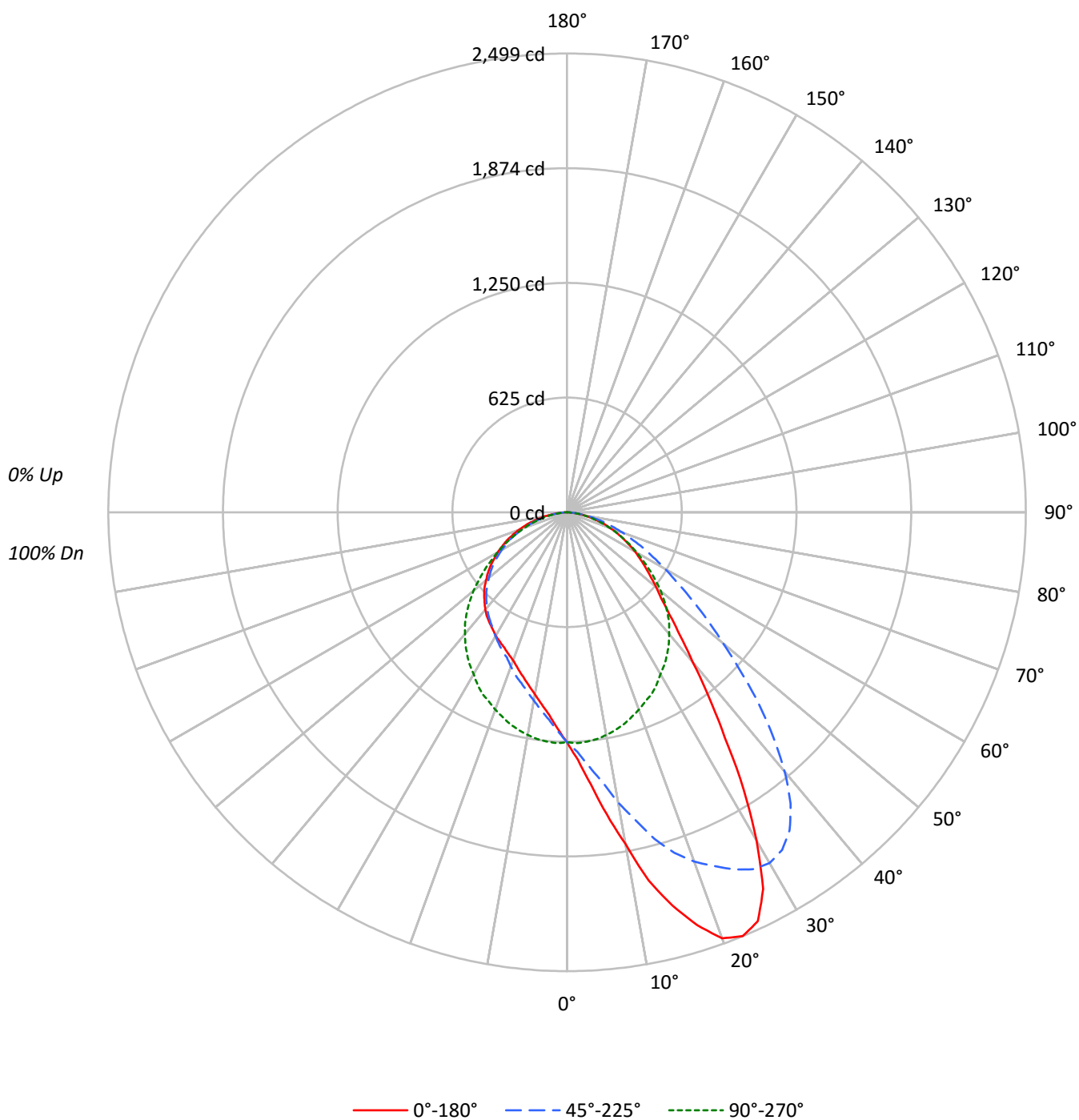
Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					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°	15178	15178	15178
5°	18083	15251	13478
10°	22583	15159	12392
15°	27831	14995	11628
20°	31847	14755	11065
25°	32866	14593	10859
30°	28875	14244	10865
35°	22160	14032	10877
40°	16856	13690	10959
45°	13563	13249	10949
50°	11937	12542	10856
55°	11002	11621	10784
60°	10368	10633	10565
65°	9637	9720	10360
70°	8817	8718	9916
75°	7840	7601	9235
80°	6562	6282	8083
85°	4631	4548	6064

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	123.2	3.3
10°-20°	395.5	10.5
20°-30°	653.3	17.3
30°-40°	747.7	19.8
40°-50°	677.6	18.0
50°-60°	547.5	14.5
60°-70°	381.4	10.1
70°-80°	200.0	5.3
80°-90°	47.7	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°	1172.0	31.1
0°-40°	1919.7	50.9
0°-60°	3144.8	83.3
0°-90°	3774.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3774.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1252	1252	1252	1252	1252	
5°	1486	1390	1253	1134	1108	153
15°	2218	1842	1195	963	927	631
25°	2457	2145	1091	832	812	1098
35°	1498	2114	948	728	735	949
45°	791	1477	773	623	639	624
55°	521	829	550	488	510	468
65°	336	453	339	334	361	333
75°	167	206	162	169	197	179
85°	33	42	33	37	44	42
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°	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2
2.5°	1348.6	1351.4	1346.8	1349.7	1342.8	1338.8	1332.5	1329.6	1315.9	1306.1	1302.7
5°	1486.2	1486.2	1487.3	1480.4	1472.4	1458.1	1439.1	1427.1	1413.3	1389.8	1377.8
7.5°	1659.3	1650.7	1645.0	1632.4	1621.5	1598.0	1577.3	1552.7	1520.6	1481.6	1460.9
10°	1834.8	1843.9	1838.2	1825.0	1796.9	1758.5	1728.1	1692.6	1642.7	1604.9	1551.0
12.5°	2053.8	2041.8	2032.6	2012.5	1981.6	1940.8	1893.8	1841.1	1776.9	1714.4	1654.2
15°	2217.8	2219.5	2218.9	2192.6	2162.2	2107.1	2063.5	1975.8	1894.4	1841.7	1741.9
17.5°	2356.5	2364.0	2355.4	2315.8	2288.9	2256.2	2200.6	2103.1	2029.1	1943.7	1833.6
20°	2468.9	2470.1	2456.3	2427.1	2396.1	2359.4	2286.0	2211.5	2139.2	2024.6	1919.6
22.5°	2498.7	2501.6	2498.7	2486.1	2460.9	2421.9	2366.9	2298.1	2206.9	2084.8	1987.3
25°	2457.4	2455.7	2465.5	2458.0	2456.9	2444.3	2408.1	2352.5	2262.5	2145.0	2021.1
27.5°	2313.0	2300.9	2325.6	2357.7	2362.3	2382.3	2382.9	2357.1	2292.3	2192.0	2057.2
30°	2063.0	2074.4	2086.5	2153.6	2190.8	2243.0	2288.3	2304.9	2280.3	2206.3	2080.2
32.5°	1791.2	1827.9	1861.7	1908.2	1962.6	2050.9	2122.6	2185.7	2212.6	2179.9	2080.2
35°	1497.6	1517.1	1570.5	1629.5	1708.1	1776.9	1919.1	2010.8	2092.8	2114.0	2053.8
37.5°	1268.3	1286.1	1304.4	1350.3	1438.6	1553.2	1670.8	1791.2	1912.7	1999.9	1996.5
40°	1065.3	1069.3	1085.4	1124.9	1198.3	1300.4	1423.7	1568.7	1726.4	1845.1	1895.0
42.5°	909.4	909.4	929.4	975.3	1017.7	1092.3	1211.5	1339.4	1512.0	1664.5	1771.1
45°	791.2	792.4	808.4	841.1	874.4	932.9	1021.2	1141.6	1319.3	1477.0	1625.5
47.5°	694.9	705.8	715.0	732.2	765.4	817.0	881.3	983.9	1110.6	1282.6	1455.8
50°	633.0	635.3	642.2	652.5	678.3	712.1	767.7	845.7	958.1	1110.6	1285.5
52.5°	572.2	572.2	579.1	591.7	606.6	634.1	674.3	739.1	823.4	961.5	1118.6
55°	520.6	522.3	523.5	533.8	546.4	567.1	598.6	641.0	718.4	829.1	966.1
57.5°	470.2	476.5	474.7	482.8	491.9	506.9	529.2	565.9	625.0	709.3	832.5
60°	427.7	426.6	429.5	432.9	439.2	449.5	470.2	497.1	546.4	616.9	717.9
62.5°	379.6	378.4	381.9	385.9	391.6	400.2	415.1	435.8	474.7	527.5	615.2
65°	336.0	334.8	336.6	338.9	345.2	352.0	363.5	380.7	406.5	453.0	520.0
67.5°	292.4	292.4	293.6	295.9	299.9	305.0	314.2	324.5	350.3	381.3	434.0
70°	248.8	249.4	249.4	251.7	255.1	259.2	266.6	275.8	291.8	319.4	361.8
72.5°	211.0	211.0	209.9	211.0	213.3	215.0	219.6	228.2	240.2	260.3	292.4
75°	167.4	170.3	169.7	169.1	170.9	173.7	177.7	184.6	192.1	206.4	230.5
77.5°	128.4	130.2	130.2	130.7	132.4	134.7	135.9	142.8	149.6	158.2	176.0
80°	94.0	95.2	94.0	94.6	95.8	98.0	100.3	101.5	106.6	114.1	122.7
82.5°	63.1	61.4	63.6	63.1	64.2	64.8	65.9	66.5	70.0	74.5	80.3
85°	33.3	36.1	35.5	36.7	35.5	36.1	36.7	39.0	39.6	42.4	45.9
87.5°	12.6	13.8	13.8	13.8	13.8	13.8	14.9	15.5	16.6	17.2	18.3
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°	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2
2.5°	1305.0	1299.8	1292.4	1284.3	1275.7	1267.1	1263.1	1258.0	1247.6	1237.3	1229.3
5°	1368.1	1353.7	1334.2	1319.9	1299.2	1279.8	1264.3	1253.4	1236.8	1216.7	1203.5
7.5°	1438.6	1412.8	1381.8	1350.3	1319.3	1290.1	1266.0	1245.4	1219.6	1194.9	1174.8
10°	1521.7	1471.8	1428.8	1383.0	1337.1	1295.8	1261.4	1231.6	1198.3	1168.5	1143.9
12.5°	1595.1	1537.2	1477.6	1412.8	1350.9	1297.5	1253.4	1214.4	1174.3	1139.9	1114.6
15°	1675.9	1594.5	1512.0	1438.6	1363.5	1298.1	1240.2	1194.9	1149.0	1110.0	1080.8
17.5°	1768.8	1659.9	1556.1	1450.6	1384.1	1299.8	1228.7	1169.1	1122.1	1083.1	1045.2
20°	1823.9	1715.5	1588.2	1479.9	1369.8	1283.2	1204.1	1143.9	1088.8	1044.1	1013.1
22.5°	1853.7	1739.6	1606.6	1495.3	1366.9	1270.0	1185.7	1114.6	1055.6	1010.8	975.9
25°	1895.5	1739.6	1616.3	1482.7	1371.5	1254.5	1159.3	1091.1	1029.2	977.6	940.9
27.5°	1914.5	1755.1	1617.5	1458.6	1344.0	1225.3	1129.0	1056.7	987.9	937.5	905.9
30°	1930.0	1757.9	1594.5	1439.7	1311.9	1192.6	1098.6	1017.7	953.5	905.3	872.1
32.5°	1931.1	1750.5	1563.6	1404.2	1268.9	1154.2	1062.4	986.2	919.1	868.1	835.4
35°	1920.8	1732.1	1528.0	1349.7	1219.0	1114.6	1022.9	948.3	880.1	831.4	798.1
37.5°	1894.4	1711.5	1494.8	1298.7	1159.9	1058.4	980.5	909.4	841.7	793.0	765.4
40°	1838.2	1678.2	1451.2	1244.2	1100.3	998.8	930.6	865.2	805.0	754.6	727.0
42.5°	1763.7	1628.4	1398.4	1186.3	1033.8	935.7	875.5	822.8	761.4	717.9	689.8
45°	1658.2	1560.7	1345.7	1125.5	967.8	871.5	816.5	772.9	720.1	676.6	651.9
47.5°	1538.9	1479.3	1277.5	1057.3	898.5	807.9	755.7	720.7	676.0	638.7	614.1
50°	1404.7	1382.4	1202.3	988.5	833.7	740.8	692.6	665.1	627.3	597.4	576.2
52.5°	1259.1	1272.9	1123.2	918.5	771.2	677.1	631.3	606.0	582.0	556.7	536.7
55°	1111.2	1143.9	1027.5	842.3	699.5	617.5	572.8	549.9	532.1	510.9	496.5
57.5°	972.4	1023.5	928.3	760.9	633.6	555.0	512.6	492.5	479.3	467.9	454.7
60°	837.7	896.7	826.2	684.6	567.6	496.0	458.1	438.6	432.3	423.7	411.1
62.5°	718.4	778.6	725.9	606.0	501.1	439.8	405.4	389.3	380.1	377.3	369.8
65°	606.6	662.8	622.7	524.1	438.1	383.6	353.2	338.9	333.7	333.1	327.4
67.5°	509.7	564.2	527.5	444.4	371.5	327.4	304.5	293.0	287.8	288.4	284.4
70°	420.3	458.7	436.9	371.5	315.4	276.4	258.6	246.0	242.0	242.0	240.8
72.5°	337.1	367.5	350.9	301.0	256.9	227.1	211.6	204.1	200.7	200.1	200.7
75°	263.7	290.1	275.2	236.2	203.0	180.6	167.4	162.3	160.5	159.4	160.0
77.5°	197.2	213.9	204.7	179.5	151.9	136.5	130.2	125.0	123.3	123.8	125.0
80°	139.3	148.5	143.3	127.3	108.9	98.6	94.0	90.0	88.3	90.0	90.0
82.5°	88.3	95.2	90.6	80.3	71.1	64.2	59.6	58.5	57.9	56.8	58.5
85°	48.2	51.6	49.3	45.9	39.6	36.7	33.3	32.7	32.7	32.7	32.7
87.5°	18.9	21.2	18.3	18.3	17.2	14.3	14.3	13.8	13.2	13.8	13.8
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2	1252.2
2.5°	1225.9	1218.4	1213.8	1207.5	1200.1	1190.3	1186.3	1190.3	1188.0	1184.0	1185.7
5°	1192.0	1182.3	1169.7	1159.3	1147.9	1133.5	1129.0	1126.7	1123.2	1121.5	1118.6
7.5°	1158.8	1144.4	1129.0	1114.6	1098.0	1085.4	1079.6	1075.6	1074.5	1065.9	1062.4
10°	1124.4	1106.6	1091.1	1071.6	1057.3	1040.7	1033.8	1029.2	1024.0	1018.3	1014.3
12.5°	1088.2	1070.5	1051.0	1032.6	1018.3	1000.0	990.8	985.6	981.6	977.6	973.0
15°	1056.7	1038.9	1012.0	998.2	981.0	962.7	956.9	945.5	946.6	939.7	935.2
17.5°	1023.5	997.1	978.2	957.5	944.9	931.7	920.8	908.8	907.1	901.9	900.2
20°	986.2	958.7	945.5	924.3	907.1	893.9	884.1	883.0	879.5	872.1	869.2
22.5°	949.5	927.1	908.8	889.3	873.8	856.6	852.0	853.7	847.4	845.7	839.4
25°	916.2	896.7	873.8	855.5	842.8	832.0	825.6	823.4	821.1	819.3	816.5
27.5°	880.7	860.0	840.6	825.6	813.6	806.2	802.1	797.0	796.4	796.4	795.3
30°	845.1	826.8	813.6	794.7	783.8	779.2	775.8	774.0	775.8	775.8	776.3
32.5°	812.5	794.7	779.2	766.0	755.1	751.7	751.1	751.1	753.4	753.4	755.1
35°	778.6	760.9	746.5	737.3	728.2	727.6	728.2	729.3	732.2	732.8	735.1
37.5°	741.9	728.2	717.3	705.8	703.5	704.7	705.8	707.0	708.1	712.7	712.7
40°	708.1	697.8	686.9	679.4	675.4	678.3	680.0	680.6	684.0	686.9	689.2
42.5°	674.9	665.1	656.5	650.2	648.5	650.8	652.5	654.2	657.7	659.9	664.0
45°	637.6	631.3	623.8	618.7	619.2	622.7	622.7	628.4	630.7	631.8	634.7
47.5°	603.2	596.3	591.1	588.8	588.3	591.1	592.9	597.4	598.6	602.6	604.9
50°	566.5	561.3	557.3	554.4	555.0	556.2	560.2	564.8	565.9	570.5	574.5
52.5°	528.1	523.5	520.0	521.2	522.9	522.9	526.9	529.8	532.7	536.1	540.1
55°	490.2	483.9	484.5	482.8	484.5	488.5	490.2	494.8	497.1	498.8	504.6
57.5°	448.9	447.8	446.1	444.4	447.8	449.5	452.4	455.3	459.3	461.6	465.6
60°	406.5	404.8	404.8	407.1	408.2	411.7	416.3	418.0	419.1	423.7	428.9
62.5°	367.5	365.8	365.2	368.7	368.7	372.1	373.8	376.7	381.3	383.0	389.9
65°	325.7	324.5	324.5	327.4	328.0	334.3	334.3	334.3	337.1	343.4	346.9
67.5°	282.1	282.7	284.4	286.1	288.4	290.1	290.7	294.1	298.7	302.7	309.6
70°	238.5	241.4	244.8	244.3	246.0	248.8	249.4	252.9	256.9	262.0	270.1
72.5°	199.5	201.3	204.7	204.7	207.0	208.7	211.6	213.9	219.0	223.6	227.1
75°	160.5	161.1	164.0	165.7	167.4	168.6	171.4	175.5	178.3	182.3	187.5
77.5°	126.1	125.0	127.3	127.9	129.0	131.3	133.6	137.6	139.9	144.5	146.2
80°	89.4	91.7	92.3	92.9	94.0	96.9	98.6	100.3	102.6	106.6	108.4
82.5°	59.1	60.2	61.9	62.5	63.6	64.2	64.8	67.7	69.4	70.5	76.3
85°	34.4	36.1	35.0	35.0	36.1	36.7	39.0	39.0	41.3	40.1	43.0
87.5°	14.9	14.3	14.3	14.9	14.3	13.8	15.5	15.5	14.9	15.5	15.5
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: P243340

CATALOG NUMBER: S123DR-H1165D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1252.2	1252.2	1252.2	1252.2
2.5°	1182.9	1182.9	1178.3	1180.0
5°	1112.9	1115.2	1109.5	1107.7
7.5°	1061.3	1059.0	1055.0	1055.0
10°	1010.8	1008.6	1006.8	1006.8
12.5°	967.3	965.0	961.5	964.4
15°	928.3	928.9	926.6	926.6
17.5°	898.5	893.3	891.6	891.0
20°	862.9	864.1	861.8	857.8
22.5°	840.6	837.7	835.4	834.8
25°	817.6	814.8	814.2	811.9
27.5°	794.7	795.3	793.5	793.5
30°	775.8	777.5	775.8	776.3
32.5°	756.8	756.8	756.8	754.6
35°	736.2	736.8	736.2	735.1
37.5°	715.0	715.0	715.6	716.7
40°	691.5	691.5	692.6	692.6
42.5°	663.4	666.3	668.0	665.1
45°	638.2	638.7	639.3	638.7
47.5°	610.1	608.3	608.9	610.1
50°	575.1	579.1	579.1	575.7
52.5°	541.3	542.4	544.7	544.7
55°	508.0	508.6	509.1	510.3
57.5°	470.2	470.7	470.7	470.2
60°	432.3	435.8	435.2	435.8
62.5°	391.6	396.8	398.5	397.9
65°	353.2	354.3	357.2	361.2
67.5°	312.5	315.4	319.9	318.8
70°	272.3	276.4	277.5	279.8
72.5°	232.2	237.4	238.5	239.7
75°	193.2	195.5	197.8	197.2
77.5°	150.8	154.2	158.2	156.0
80°	113.0	113.5	117.0	115.8
82.5°	74.5	79.1	79.1	76.8
85°	43.6	43.6	43.6	43.6
87.5°	14.9	14.3	15.5	14.9
90°	0.0	0.0	0.0	0.0

(END OF REPORT)