

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: P242470

Luminaire Tested: **S123DR-S1165D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242470
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-20)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DR-S1165D835-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4616.3 lumens
Efficiency: N/A
Efficacy: 112.3 lumens/watt
Spacing Criteria (0/90/45): 1.37 / 1.23 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

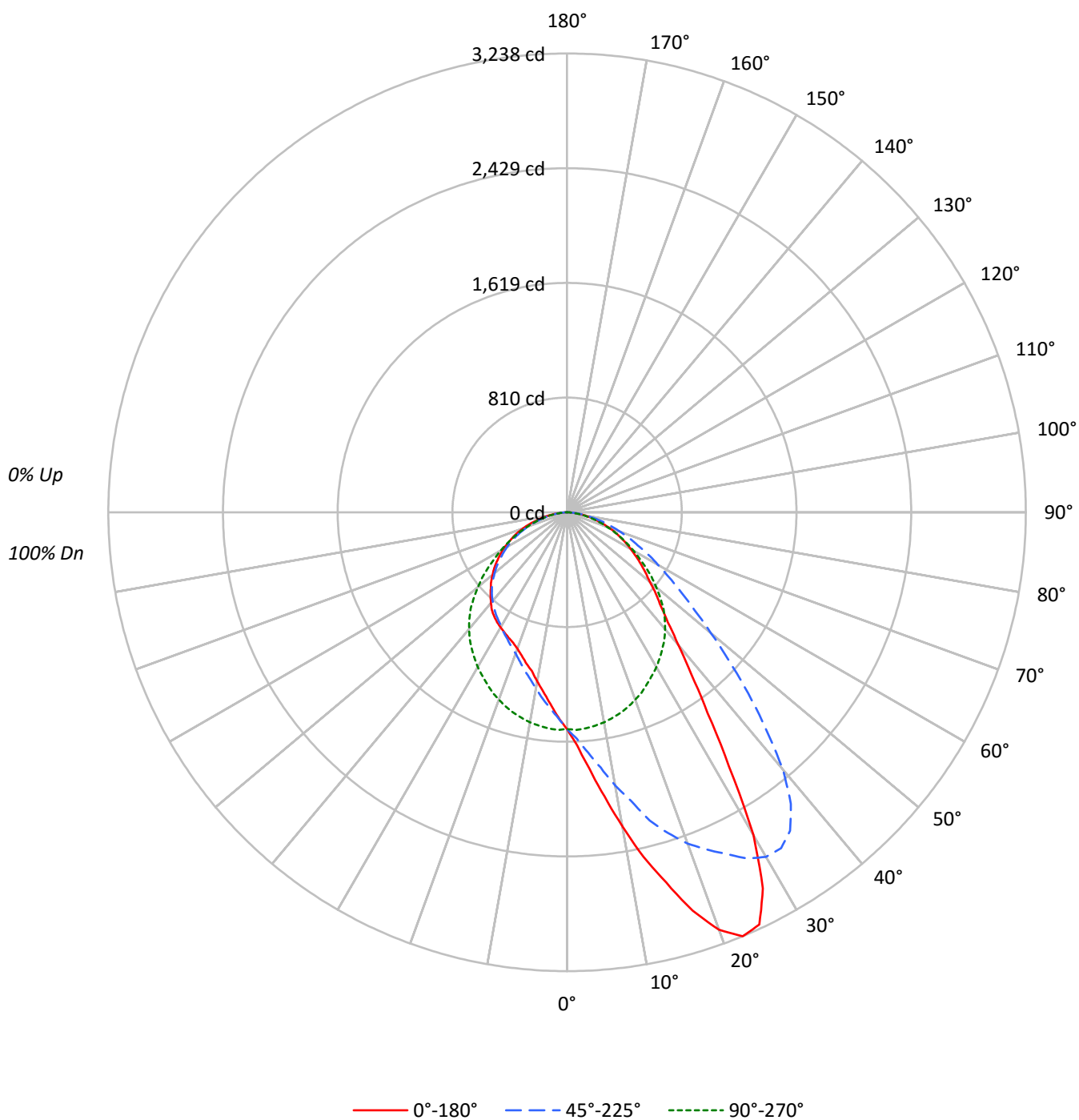
Input Watts (W): 41.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	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	65	58	82	72	64	58	69	62	57	67	61	56	65	60	56	53		53
5	78	66	57	51	76	64	56	50	62	55	50	60	54	49	59	53	49	47		47
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	48	43	41		41
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36		36
8	62	49	41	35	61	49	41	35	47	40	35	46	39	35	45	39	35	33		33
9	58	45	37	32	57	45	37	32	43	36	32	42	36	31	41	36	31	29		29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27		27

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	18538	18538	18538
5°	22108	18619	16499
10°	27671	18524	14903
15°	33941	18374	13874
20°	40432	18141	13210
25°	42931	17859	13061
30°	36798	17652	13130
35°	25592	17357	13267
40°	19276	17013	13227
45°	16005	16501	13059
50°	14337	15455	12940
55°	13404	14328	12779
60°	12575	13149	12647
65°	11817	11986	12241
70°	11082	10660	11660
75°	9924	9334	10687
80°	8691	7657	9207
85°	6801	5563	6189

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	150.4	3.3
10°-20°	483.1	10.5
20°-30°	812.9	17.6
30°-40°	918.7	19.9
40°-50°	822.9	17.8
50°-60°	664.2	14.4
60°-70°	462.8	10.0
70°-80°	242.9	5.3
80°-90°	58.2	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°	1446.5	31.3
0°-40°	2365.2	51.2
0°-60°	3852.3	83.5
0°-90°	4616.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4616.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1529	1529	1529	1529	1529	
5°	1817	1703	1530	1386	1356	187
15°	2705	2251	1464	1154	1106	781
25°	3210	2660	1335	992	977	1419
35°	1730	2743	1173	877	897	1116
45°	934	1808	963	750	762	736
55°	634	982	678	580	605	569
65°	412	551	418	394	427	410
75°	212	261	199	198	228	226
85°	49	56	40	39	44	59
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°	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4
2.5°	1646.5	1645.0	1641.3	1644.3	1638.4	1630.2	1629.5	1622.1	1600.6	1599.1	1593.2
5°	1817.0	1811.0	1810.3	1809.5	1799.2	1785.1	1758.4	1756.2	1720.6	1702.8	1681.3
7.5°	2023.0	2020.7	2014.8	2008.1	1973.3	1956.3	1931.1	1898.5	1857.0	1817.0	1791.8
10°	2248.2	2272.7	2242.3	2221.5	2202.3	2166.0	2123.7	2071.1	2018.5	1957.0	1910.3
12.5°	2489.8	2498.7	2498.7	2479.4	2446.8	2386.8	2303.8	2244.5	2197.1	2084.5	2044.4
15°	2704.7	2749.9	2721.0	2654.3	2655.8	2603.2	2505.3	2397.9	2340.8	2251.2	2128.9
17.5°	2947.7	2955.9	2947.0	2884.7	2854.4	2778.0	2689.9	2589.8	2482.4	2373.5	2246.7
20°	3134.5	3130.0	3104.1	3075.2	3011.5	2955.1	2856.6	2741.7	2593.5	2486.8	2345.3
22.5°	3238.2	3230.1	3221.2	3198.2	3147.8	3086.3	3000.3	2872.1	2732.8	2575.7	2406.8
25°	3210.0	3219.7	3221.2	3214.5	3196.0	3159.7	3090.0	2990.0	2849.2	2660.2	2489.8
27.5°	2992.2	3016.6	3047.8	3068.5	3101.9	3124.1	3101.9	3038.9	2923.3	2754.3	2544.6
30°	2629.1	2599.5	2672.8	2765.4	2828.4	2939.6	3001.8	3005.5	2947.0	2806.9	2603.9
32.5°	2125.2	2173.4	2195.6	2314.9	2471.3	2599.5	2738.8	2862.5	2891.4	2809.9	2638.7
35°	1729.5	1770.3	1829.6	1888.8	2037.0	2164.5	2382.3	2572.0	2723.2	2743.2	2634.3
37.5°	1437.6	1461.3	1497.6	1560.6	1662.1	1819.9	1992.6	2239.3	2447.6	2594.3	2579.5
40°	1218.2	1224.1	1266.4	1311.6	1390.1	1514.6	1666.5	1878.5	2140.8	2368.3	2463.1
42.5°	1053.7	1068.5	1080.4	1123.4	1181.9	1267.9	1406.4	1572.4	1807.3	2077.8	2286.0
45°	933.7	948.5	959.6	988.5	1033.0	1096.0	1194.5	1354.6	1537.6	1808.1	2057.8
47.5°	850.7	849.2	858.8	881.8	913.7	964.1	1036.7	1143.4	1319.0	1545.0	1806.6
50°	760.3	772.1	775.1	792.1	815.9	850.7	908.5	995.9	1133.7	1326.4	1562.0
52.5°	696.5	698.0	707.7	718.8	738.8	764.0	812.1	875.9	976.6	1133.7	1345.7
55°	634.3	634.3	642.5	652.1	663.9	688.4	721.7	772.1	854.4	981.8	1161.2
57.5°	576.5	579.5	586.9	589.1	599.5	616.5	645.4	685.4	748.4	851.4	999.6
60°	518.7	525.4	524.6	530.6	539.5	552.1	575.8	606.9	661.7	740.3	860.3
62.5°	468.3	466.1	466.1	473.5	482.4	494.3	507.6	533.5	578.0	645.4	743.2
65°	412.0	410.5	415.7	420.2	423.1	432.0	443.9	467.6	498.7	550.6	629.9
67.5°	363.1	358.6	362.4	363.8	369.0	376.4	388.3	403.1	428.3	472.0	535.7
70°	312.7	309.0	308.3	309.7	314.2	319.4	327.5	341.6	364.6	397.9	441.6
72.5°	260.8	258.6	258.6	262.3	263.8	266.8	272.0	284.5	301.6	324.6	364.6
75°	211.9	211.9	211.9	212.7	214.9	217.9	222.3	229.0	243.1	260.8	288.3
77.5°	167.5	168.2	166.7	166.0	169.7	171.2	171.9	179.3	187.5	200.8	222.3
80°	124.5	120.8	122.3	124.5	126.0	126.7	128.9	130.4	137.1	143.8	157.8
82.5°	84.5	81.5	81.5	85.2	85.2	86.0	88.2	90.4	91.9	97.8	103.7
85°	48.9	48.9	49.6	49.6	50.4	49.6	51.9	52.6	52.6	56.3	60.8
87.5°	22.2	20.7	21.5	22.2	21.5	22.2	23.0	23.7	24.5	25.2	25.9
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°	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4
2.5°	1588.7	1582.8	1576.9	1566.5	1557.6	1545.0	1541.3	1536.9	1523.5	1511.7	1502.8
5°	1673.2	1655.4	1629.5	1605.8	1586.5	1560.6	1545.7	1530.2	1508.0	1487.9	1471.6
7.5°	1754.0	1722.8	1686.5	1647.3	1609.5	1573.2	1544.3	1518.3	1489.4	1461.3	1439.8
10°	1854.0	1803.6	1747.3	1686.5	1634.7	1584.3	1542.0	1505.0	1465.0	1430.1	1401.2
12.5°	1968.1	1887.3	1804.4	1727.3	1663.6	1588.7	1535.4	1485.7	1439.0	1395.3	1362.0
15°	2053.3	1958.5	1866.6	1765.1	1671.7	1584.3	1523.5	1464.2	1411.6	1368.6	1327.1
17.5°	2137.8	2034.1	1917.0	1794.7	1685.1	1584.3	1501.3	1437.6	1373.1	1321.2	1281.2
20°	2207.5	2085.2	1948.1	1819.9	1695.4	1579.8	1486.5	1406.4	1335.3	1279.7	1233.0
22.5°	2267.5	2119.3	1976.3	1837.0	1694.7	1568.0	1459.0	1376.1	1297.5	1243.4	1193.0
25°	2305.3	2134.1	1991.8	1831.0	1676.2	1547.2	1428.7	1335.3	1258.2	1194.5	1143.4
27.5°	2340.8	2131.9	1971.1	1797.7	1653.9	1525.7	1398.3	1298.2	1217.5	1148.6	1096.0
30°	2376.4	2135.6	1934.8	1763.6	1618.4	1485.0	1362.0	1261.2	1175.2	1104.8	1055.9
32.5°	2398.6	2133.4	1901.4	1716.2	1562.0	1447.9	1322.7	1217.5	1128.6	1059.6	1013.0
35°	2404.6	2120.8	1862.2	1647.3	1500.5	1385.7	1281.2	1173.0	1080.4	1015.9	962.6
37.5°	2392.0	2097.8	1819.2	1585.0	1426.4	1312.3	1221.2	1128.6	1039.6	967.8	921.1
40°	2351.2	2075.6	1767.3	1518.3	1349.4	1240.4	1165.6	1075.2	987.8	920.3	877.4
42.5°	2273.4	2030.4	1710.2	1444.2	1269.3	1160.4	1093.0	1021.1	939.6	877.4	834.4
45°	2137.1	1960.7	1653.2	1370.1	1190.8	1078.2	1017.4	962.6	887.7	826.2	789.2
47.5°	1962.9	1866.6	1570.9	1292.3	1108.5	999.6	935.9	890.7	832.2	782.5	746.2
50°	1779.9	1745.1	1487.2	1212.3	1026.3	920.3	859.6	819.6	780.3	730.6	698.0
52.5°	1568.7	1604.3	1389.4	1129.3	942.6	838.8	782.5	752.9	718.0	679.5	652.1
55°	1373.1	1450.9	1273.8	1034.4	859.6	760.3	706.2	678.0	657.3	626.9	602.4
57.5°	1183.4	1282.7	1153.8	938.9	778.1	691.4	638.0	606.1	592.8	575.8	555.8
60°	1018.1	1116.0	1023.3	842.5	695.8	614.3	568.4	542.4	529.1	518.0	501.7
62.5°	870.7	970.0	895.9	744.7	615.0	540.9	502.4	477.2	467.6	463.1	449.8
65°	738.0	823.3	771.4	642.5	538.7	472.0	435.7	417.9	408.3	406.1	397.2
67.5°	623.2	689.1	649.1	552.1	467.6	406.8	375.0	359.4	351.2	350.5	343.1
70°	510.6	571.3	542.4	456.5	386.1	340.9	314.2	300.8	296.4	295.7	292.0
72.5°	423.1	460.9	439.4	371.2	320.9	280.8	263.1	249.0	243.8	245.3	243.1
75°	326.0	357.9	344.6	294.9	251.2	224.5	208.2	199.3	194.9	197.1	194.1
77.5°	249.0	271.2	257.9	220.1	191.9	171.9	159.3	153.4	148.9	148.9	147.5
80°	177.1	189.0	182.3	161.5	139.3	123.0	113.4	109.7	107.4	106.7	106.0
82.5°	113.4	123.0	114.9	102.3	88.9	80.8	76.3	71.1	69.7	70.4	69.7
85°	63.7	67.4	64.5	55.6	49.6	45.2	42.2	40.0	38.5	39.3	37.8
87.5°	27.4	28.2	25.9	23.0	21.5	19.3	19.3	17.8	16.3	16.3	15.6
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°	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4	1529.4
2.5°	1497.6	1492.4	1485.0	1473.9	1465.0	1450.9	1450.9	1453.1	1453.1	1452.4	1450.9
5°	1458.3	1447.2	1433.9	1418.3	1402.0	1385.7	1382.7	1376.8	1372.3	1369.4	1365.7
7.5°	1418.3	1399.8	1381.2	1359.8	1341.2	1325.7	1314.5	1304.9	1299.0	1292.3	1287.1
10°	1377.5	1353.1	1330.1	1307.1	1281.9	1261.9	1249.3	1240.4	1233.8	1227.9	1224.9
12.5°	1329.4	1300.5	1274.5	1253.0	1224.9	1204.1	1192.3	1189.3	1181.2	1167.1	1159.7
15°	1282.7	1256.8	1226.4	1193.0	1179.7	1154.5	1140.4	1133.7	1129.3	1119.7	1116.7
17.5°	1244.2	1209.3	1174.5	1150.0	1125.6	1105.6	1097.4	1088.5	1082.6	1073.7	1071.5
20°	1196.0	1165.6	1134.5	1107.8	1081.9	1059.6	1053.0	1047.0	1041.1	1037.4	1034.4
22.5°	1147.1	1116.7	1092.2	1067.8	1039.6	1027.0	1019.6	1013.0	1009.3	1007.0	1004.1
25°	1101.9	1075.2	1046.3	1024.1	1001.8	992.2	987.8	984.1	981.1	977.4	976.6
27.5°	1061.9	1032.2	1007.8	986.3	970.0	961.8	956.6	954.4	954.4	955.9	956.6
30°	1015.9	989.2	970.0	952.2	937.4	930.0	929.2	929.2	932.2	932.9	934.4
32.5°	973.7	952.9	933.7	916.6	906.3	901.8	905.5	905.5	907.7	910.0	912.9
35°	932.9	913.7	898.8	884.0	874.4	876.6	878.1	879.6	883.3	887.7	890.7
37.5°	894.4	876.6	861.1	849.2	843.3	847.7	851.4	854.4	858.8	862.5	865.5
40°	852.2	839.6	824.7	814.4	815.9	818.1	821.0	824.7	828.4	830.7	833.6
42.5°	812.9	799.5	789.2	781.0	783.2	786.2	787.7	789.2	793.6	798.1	799.5
45°	772.9	762.5	752.1	746.9	748.4	749.9	751.4	753.6	757.3	760.3	761.0
47.5°	727.7	720.3	713.6	707.7	710.6	709.9	712.1	716.6	718.0	719.5	724.0
50°	684.7	678.0	669.9	668.4	668.4	668.4	669.1	675.1	675.1	678.0	681.0
52.5°	637.3	633.6	629.1	626.2	624.7	624.7	628.4	630.6	632.1	636.5	639.5
55°	590.6	586.1	581.7	579.5	578.0	579.5	585.4	586.9	590.6	592.8	595.0
57.5°	541.7	538.7	535.0	533.5	533.5	534.3	538.7	542.4	543.2	550.6	553.5
60°	493.5	488.3	485.4	485.4	483.9	490.5	489.1	496.5	498.0	502.4	507.6
62.5°	443.9	436.5	435.7	435.7	438.7	439.4	442.4	444.6	449.1	455.0	458.7
65°	389.8	386.1	391.3	390.5	389.0	393.5	393.5	397.2	401.6	406.8	415.0
67.5°	339.4	336.4	337.9	337.2	339.4	342.3	344.6	347.5	352.7	358.6	363.8
70°	288.3	290.5	286.8	289.7	292.0	292.7	294.2	298.6	304.6	308.3	314.2
72.5°	238.6	237.9	239.3	240.1	242.3	243.8	245.3	250.5	257.1	260.1	264.5
75°	191.2	190.4	192.7	192.7	196.4	197.8	199.3	201.6	207.5	211.9	215.6
77.5°	148.2	148.9	148.2	151.2	149.7	150.4	154.9	157.1	157.8	167.5	168.9
80°	105.2	106.7	107.4	108.2	108.9	107.4	112.6	114.9	114.9	120.0	123.7
82.5°	68.2	68.9	71.1	71.9	71.9	74.1	73.4	74.8	77.1	78.5	83.7
85°	37.8	40.0	40.8	40.0	40.8	39.3	41.5	42.2	43.0	43.0	43.0
87.5°	14.8	15.6	14.8	15.6	14.8	15.6	15.6	14.1	14.1	16.3	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

TEST NUMBER: P242470

CATALOG NUMBER: S123DR-S1165D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1529.4	1529.4	1529.4	1529.4
2.5°	1445.7	1445.0	1450.2	1446.4
5°	1361.2	1363.5	1356.0	1356.0
7.5°	1284.9	1281.9	1282.7	1277.5
10°	1216.0	1211.5	1210.1	1210.8
12.5°	1158.9	1158.9	1147.1	1147.1
15°	1116.7	1102.6	1101.1	1105.6
17.5°	1070.0	1061.9	1062.6	1061.1
20°	1034.4	1030.0	1029.3	1024.1
22.5°	1001.8	1001.1	1001.8	995.9
25°	975.9	979.6	976.6	976.6
27.5°	958.1	958.1	955.9	955.9
30°	937.4	936.6	938.1	938.1
32.5°	916.6	918.1	918.1	918.9
35°	895.1	895.9	898.1	896.6
37.5°	867.0	870.7	869.9	871.4
40°	834.4	836.6	835.9	835.9
42.5°	801.0	802.5	800.3	798.8
45°	764.0	762.5	764.7	761.8
47.5°	723.2	724.0	724.7	727.7
50°	682.5	686.9	686.9	686.2
52.5°	642.5	643.9	647.6	647.6
55°	601.0	602.4	603.9	604.7
57.5°	558.7	558.0	560.9	561.7
60°	513.5	513.5	519.4	521.7
62.5°	465.4	468.3	474.2	469.8
65°	418.7	424.6	423.9	426.8
67.5°	369.8	373.5	379.4	379.4
70°	320.1	323.8	326.8	329.0
72.5°	272.0	273.4	281.6	277.1
75°	220.8	226.0	230.5	228.2
77.5°	171.9	178.6	180.1	177.8
80°	128.9	128.2	132.6	131.9
82.5°	86.0	85.2	86.7	87.4
85°	45.9	48.2	45.2	44.5
87.5°	13.3	13.3	12.6	11.9
90°	0.0	0.0	0.0	0.0

(END OF REPORT)